SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE, MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: CALCULUS

CODE NO MTH577-4 **SEMESTER**

PROGRAM ELECTRICAL/ELECTRONIC/COMPUTER TECHNOLOGY

AUTHOR: JOHN REAL

DATE: AUGUST 1991 **PREVIOUS OUTLINE DATED:** MAY 1991

APPROVED _____ DEAN _____ P^TTE

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TOTAL CREDIT HOURS: 64

PREREQUISITE(S): MTH551

I, PHILOSOPHY/GOALS:

This course deals with applications of simple integration, velocity, acceleration, areas, volumes, differentiation and integration of transcendental functions, and methods of integration.

II. STUDENT PERFORMANCE OBJECTIVES:

The basic objective is that the student develop an understanding of the mathematical concepts and methods studied, and learn how these are used in the solution of problems. For this purpose, exercises are assigned to reinforce concepts learned, and to show the relevance of these concepts to the student's needs. 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 below.

III. TOPICS TO BE COVERED:

1. Applications of Integration. (10 periods)
2. Differentiation of Transcendental Functions. (22 periods)
3. Methods of Integration. (21 periods)

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IV. LEARNING ACTIVITIES:

1.0 Applications of Integration	Ch, 25
1.1 Applications of the indefinite integral	Questions 1-20, 23, p,769
1.2 Areas by integration	Questions 1-27, p.775
1.3 Volumes by integration	Questions 1-26, p.782
1.4 Review Exercise	Questions 1-22, p.802
2.0 Differentiation of Transcendental Functions	Ch- 26
2-1 Derivatives of sine and cosines functions	Questions 1-50, p.809
2.2 Derivatives of other trig, functions	Questions 1-46, p.813
2.3 Derivatives of inverse trigonometric functions	Questions 1-41, p.817
2.4 Applications	Questions 1-8, 11-16, p.821
2.5 Derivatives of logarithmic functions	Questions 1-48, p.826
2-6 Derivatives of exponential functions	Questions 1-48, p.829
2.7 Applications	Questions 1-32, p.833
2.8 Review	Questions 1-50, p.835

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IV. LEARNING ACTIVITIES: (cont'd)

3.0	Methods of Integration	Ch. 27
3.1	The general power formula	Questions 1-24, p.843
3.2	The basic logarithmic form	Questions 1-28, p.846
3.3	The exponential form	Questions 1-24, p.850
3.4	Basic trigonometric forms	Questions 1-24, p.853
3.5	Other trigonometric forms	Questions 1-28, p.858
3.6	Inverse trigonometric forms	Questions 1-28, p.862
3.7	Integration by parts	Questions 1-16, p,866
3.8	Integration by trigonometric substitution	Questions 1-16, p.870
3.9	Review	Questions 1-36, p.874

V. METHOD OF EVALUATION:

1. Three - four tests per semester.

2. Final grade is a weighted average of these tests.

90 - 100% » A+
80 - 89% » A
65 - 79% = B
55 - 64% » C
0 - 54% ≠« R (or X)

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V. METHOD OF EVALUATION: (cont'd)

Under special circumstances an X grade may be assigned to allow the student to continue with the next math course. If unsuccessful with this next course, both courses would have to be repeated.

All tests are scheduled in advance. Hence, attendance is mandatory. Unexcused absence from a test will result in a mark of zero for that test. If a student is prevented from writing a test by illness, the instructor should be notified before the time of the test. Upon return to class, the student should see the instructor immediately to arrange a time for a make-up test. The student should have a note from the college nurse or a doctor.

VI. REQUIRED STUDENT RESOURCES:

Washington, Basic Technical Mathematics with Calculus, Fifth edition, metric version. Benjamin/Cummings Pub. Co. 1990

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.