

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

COURSE OUTLINE

Course Title: MATHEMATICS
Code No.: MTH 220-4
Program: WATER RESOURCES/PULP AND PAPER ENGINEERING TECHNOLOGY
Semester: TWO
Date: JUNE 1989
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New:

Revision:

APPROVED:


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MATHEMATICS

MTH 220-4
WRT/PPE SEM II

Course Name

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PHILOSOPHY/GOALS (CALENDAR DESCRIPTION):

The course consists of Algebra, Trigonometry and Analytic Geometry. The Algebra section takes more than half of the time in the course, and includes Simultaneous and Quadratic Equations, Exponents, Radicals, Exponential and Logarithmic Functions, Ratio, Proportion and Variation, The Trigonometry starts with basics and progresses to the solution of oblique triangles. In Analytic Geometry, straight lines and the conic sections are covered. The course prepares the student for calculus in the subsequent mathematics course.

METHOD OF ASSESSMENT (GRADING METHOD)

The 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. A separate handout will include a schedule of tests, a description of the method used to find the weighted average and a number of requirements and suggestions with regard to tests. ATTENDANCE AT ALL TESTS IS REQUIRED. Unexcused absence from a test will result in a 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.

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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, than 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):

Person - "ESSENTIALS OF MATHEMATICS" (Fifth 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 pages.

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TOPIC NO.	NO. OF PERIODS	TOPIC DESCRIPTION	REFERENCES
		Algebra review (continued) Functions and graphs Simultaneous equations	Text, Ch. 16,17
		<u>Quadratic Equations</u> Factoring, completing the square, formula method	Text, Ch. 20
	10	<u>Exponents and Radicals</u> Integral and fractional exponents Simplest radical form Addition, subtraction, multiplication and division of radicals Radical equations	Text, Ch. 18,19
		<u>Exponential and Logarithmic Functions</u> Definitions, graphs of functions, properties of logarithms, logarithms to Base 10 using a calculator, computations using logarithms, natural logarithms using a calculator logarithms to other bases, exponential and logarithmic equations.	Text, Ch. 34-36

Note: Since each student is expected to have a scientific calculator, the use of tables may be omitted when interpolation experience is not required. Also the use of log trig functions is unnecessary. In Ex. 35-3 the instructions should be modified to reflect the use of calculators.

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TOPIC NO.	NO. OF PERIODS	TOPIC DESCRIPTION	REFERENCES
		<u>Ratio, Proportionr Variation</u>	Text, Ch, 25
II		<u>Review of Basic Trigonometry</u> Angles, trigonometric functions, rt. triangles, trig functions of any angle. Sine Law, Cosine Law, areas, applications. The calculator can be used instead of trig, tables. Also the instructions in exercises should be amended to avoid the use of loose approximations for (such as 3-14). For areas of triangles additional problems can be used or text exercises can be altered to require areas.	Text, Ch 37-40, 43, 45
11		<u>Analytic Geometry</u> Definitions, straight line, circle, parabola, translation of axes, general second degree equation. Graphical and algebraic solutions of systems of second degree equations.	Ch, 23 and any analytic geom, manuscript