

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title MATHEMATICS
Code No. : MTH 426-4
Program: MECHANICAL TECHNOLOGY
Semester: TWO
Date: JUNE, 1984
Author: W, MacQUARRIE

New:

Revision

APPROVED



Chairperson

CALENDAR DESCRIPTION

MATHEMATICS
Course Name

MTH 426-4
Course Number

PHILOSOPHY/GOALS:

When the student has successfully completed this course he will have demonstrated an acceptable ability to pass tests based upon the course contents 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 of this subject matter.

METHOD OF ASSESSMENT (GRADING METHOD):

The students will be assessed by tests. These tests will include periodic tests based upon blocks of subject matter and may, at the instructor's discretion include unannounced surprise tests on current work and/or a final test on the whole course. A letter grade will be based upon a student's weighted average of his test results- See also the mathematics department's annual publication "To The Mathematics Student" which is presented to the students early in each academic year.

TEXTBOOK(S):

Washington - "Basic Technical Mathematics with Calculus"

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.

NOTE:

This course differs from the parallel Electrical and Computer Technology math course in that the mechanical students omit "Number Systems and Boolean Algebra" at the start of the term and take "Analytic Geometry" at the end of the term. Hence, the two courses are out of step throughout the term.

ENTRY TO COURSES

Prerequisite: MTH 413 or credit in MTH 413.

A student who has taken MTH 120 instead of MTH 413 may be admitted to MTH 426 if certain conditions are met:

1. The student has earned an "A" or "B" in MTH 120;
2. The student is entering a technology program.

AUDITING:

Computer, electrical, and electronics students who are taking the "Logic and Switching" course but who are not registered in MTH 426 will be permitted to audit the topic "Number Systems and Boolean Algebra".

ENTRY TO SUCCEEDING COURSES:

A student who successfully completes MTH 426 is admitted to the succeeding math course. If a student transfers to a related technician program his grade in MTH 426 will be accepted in lieu of the second semester technician math course (MTH 220).

A student who fails second semester technology math (MTH 426) and transfers to a related technician program may be granted a "C" in second semester technician math (MTH 220) and entry to third semester technician mathematics if he meets certain requirements:

1. Good attendance (80% or better);
2. MTH 426 average is 40% or better;
3. 50% or better in each algebra related topic in MTH 426 except "Progressions and Binomial Theorem";
4. Every test in MTH 426 has been written.

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TOPIC NO.	PERIODS	TOPIC DESCRIPTION	ASSIGNMENTS	REFERENCE
		Ratios, proportions and variations	Text, Exercises 17-1, 2, 3	Text, Ch, 17
		<u>Quadratic Equations</u> By factoring, completing the square, formula Equations of quadratic type, radical equations	Text, Exercises 6-1 to 6-4 and 13-3	Text, Ch. 6 and 13-3
10		<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. Note: Since each student is expected to have a scientific calculator, the use of tables may be omitted, if table interpolation is not a course requirement. Also the use of log trig functions is unnecessary. In Ex. 12-7 the instructions should be modified to reflect the use of calculators.	Text, Exercises 12-1 to 12-5, 12-7, 12-8, parts of 12-10	Text, Ch. 12 omit 12-6 and 12-9
		<u>Progressions and the Binomial Theorem</u> Arithmetic progressions Geometric progressions Infinite geometric progressions The binomial theorem	Text, Exercises 18-1 to 18-5	Text, Ch. 18

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TOPIC NO.	PERIODS	TOPIC DESCRIPTION	ASSIGNMENTS	REFERENCE
5	8	Trigonometry: Large Angles, Oblique Triangles and Graphs of Trig Functions Signs of functions Functions of any angle Radian measure Sine Law Cosine Law Graphs of various trig function	Text, Exercises 7-1 to 7-5 8-4 to 8-6 9-1 to 9-4	Text, Ch. 7, 8. 9
6	12	Trigonometric Identities and Equations Sum and difference, double angles, equations, inverse functions	Text, Exercises 19-1 to 19-8	Text, Ch. 19
	16	<u>Analytic Geometry</u> The straight line, the circle, the parabola, the ellipse, the hyperbola, translation of axes, the second degree equation	Text, Exercises 20-1 to 20-8 and 20-11 (part)	Text, Ch, 20 omit 20-9