

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

COURSE OUTLINE

Course Title: TECHNOLOGICAL MATHEMATICS  
Code No. MTH 386-3  
Program MECHANICAL TECHNOLOGY (YEAR 3)  
Semester: VI  
Date AUGUST, 1986  
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New

Revision:

APPROVED

  
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Date

MATHEMATICS

MTH 386-3...MECHANICAL

COURSE NAME

COURSE NUMBER

PHILOSOPHY/GOALS;

This is the last mathematics course taken by Mechanical Technology students before graduating. Second Order Differential Equations, the final topic in Calculus, is followed by an introduction to the mathematics of Statistics.

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 perhaps, 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 Mathematics department's annual publication "To the Mathematics Student" for further details. This publication appears as the last two pages of this course outline.

As in any other subject, the student in 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.

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, then you are probably on target.

Marks allotted to each question on a test are usually shown. Please enquire if they are not.

**TENTATIVE SCHEDULE OF INSTRUCTION AND TESTS**

TOPIC NO.	NO. OF PERIODS	TENTATIVE TEST DATE	TOPIC WEIGHT
1	18	To be	72
2a	12	announced	48
2b	12	early in the term	48
TOTALS	42		168

Before recording, test results will be adjusted to reflect the value indicated under "Topic Weight". The minimum total required for each letter grade is listed below for your convenience. Please note that in addition to a minimum total mark there are additional requirements to qualify for a grade of I or X.

LETTER GRADE	MINIMUM TOTAL REQ'D
A+	151
A	134
B	109
C	92
I or X	76

The notes on the last two pages, entitled "To the Mathematics Student" are applicable to all mathematics courses at Sault College.

TEXTBOOK(S):

BASIC TECHNICAL MATHEMATICS WITH CALCULUS; Washington

MTH386-3

MECHANICAL TECHNOLOGY MATHEMATICS

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	ASSIGNMENTS	REFERENCE
	18	Second Order <u>Differential Equations</u> - Homogeneous form. D-operator, auxiliary equations - three types of roots. Non-homogeneous equations. Applications. Harmonic motion, other word problems -	Ex. 8 9 10 Hand-out	Ch. 29
	24	<u>Statistics</u> - Descriptive statistics. Frequency distributions, mean, median, mode, quantiles, standard deviation, variance, standardized variable. Probability theory. Conditional probability, independent and dependent events, mutually exclusive events, permutations, combinations, probability distributions. Inferential statistics. Binomial distributions, normal distributions, sampling theory, estimation theory with confidence intervals.	2 3 1	Ch. 21 Hand-out

1. GRADES

Each Mathematics grade is based upon a weighted average of test scores on the following basis:

80%-89%	A
65%-79%	B
55%-64%	C
45%-54%	I, X, OR R (See #5 & 6)
0% -44%	R

First semester students who are proceeding into second semester Electrical, Electronic or Mechanical Technician Programs may have a different set of grade requirements which will be defined in class.

The method of calculating your weighted average will be defined by your instructor. Since grades are based upon averages, it follows that good marks in some tests can compensate for a failing mark in another test\* If there are extenuating circumstances, an instructor can make an exception and assign an "I" or "X" grade even if the average is below 45%.

2/ TESTS

While regular tests will normally be scheduled and announced beforehand, there can be an unannounced test on current work at any time. Such tests, at the discretion of the instructor, can be used for up to 30% of the overall mark.

At the discretion of the instructor, there can be a final test which can be used for up to 30% of the overall mark. Anything included in the work of the semester is fair game on such a final test.

3, ABSENCE FROM CLASS

If you are absent from class, it is your responsibility to find out from another student what work was covered and assigned and to complete this work before the next class. Your absence indicates your acceptance of this responsibility.

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TO THE MATHEMATICS STUDENT..continued

4. TEST ABSENCE

Unexcused absence from a scheduled test will result in a zero mark. Absence may be excused on compassionate grounds such as verified illness or bereavement. On return from an excused absence, you should ask your instructor about writing a make-up test.

If your instructor uses short unannounced tests, the following will apply, Unexcused absence from such a test will result in a zero mark. If absence from such a test is excused, then, at your request, the marks for that test will be excluded from the calculation of your course average.

5. MAKE-UP PERIOD (IF APPLICABLE)

An "X" grade may be assigned at the end of the regular semester if you have achieved an overall average between 45%-54% and your attendance and effort on the course have been satisfactory. Satisfactory attendance and effort will include writing all the topic tests and attending at least 80% of the scheduled classes. If you are assigned an "X" grade, you may convert it to a "C" grade by passing a make-up test on the whole course. This test will be available only at the time specified by your instructor. At the end of the regular term, it is the student's responsibility to obtain his/her results from his/her instructor and, in the event of an "X" grade, to inquire when the make-up test will be available. At the discretion of the instructor, a topic make-up test may be used instead of an overall test in special circumstances. No student will be permitted more than one such topic make-up test.

6. "R" AND "X" GRADES ^ bl THE END OF THE SEMESTER

If an "X" grade is not cleared by the specified date, it will become an "R" grade. Except for extenuating circumstances, an "X" grade in Math will not carry on into the next semester.

"R" GRADES DURING THE SEMESTER

A student with a failing grade and poor attendance (less than 80% attendance) may be given an "R" at any time during the semester.