

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



COURSE OUTLINE

Course Title: Mathematics

Code No. MTH153 Semester:

Program Heavy Equipment (Diesel)

Author: John Giguere

Date; June, 1997 Previous Outline Date: Jan. 1996

Approved: Q < ^ X C 7 ^ V Z ^ ^ A ^ Q  
(/ Dean'

Q " ^ ^ ^  
^ Date

Total Credits: 3 Prerequisite(s): None

Length of Course: 3 Hrs/Wk Total Credit Hours: 51

Copyright © 1997 The Sault College of Applied Arts & Technology  
*Reproduction of this document by any means, in whole or in part, without the prior  
written permission of The Sault College of Applied Arts & Technology is prohibited.*  
*For additional information, please contact Judy Morris, Dean, School of Uberai Studies, Creative  
Arts and Access Programs, (705) 759-2554, Ext. 516.*

**I. PHILOSOPHY/GOALS:**

The course will increase the student's accuracy and skill in performing the mathematical calculations encountered in the Heavy Equipment Profession. Emphasis will be placed on practical problem solving. Topics include mathematical fundamentals, percent and percentages, measurement, ratio and proportion, powers and roots and formula applications.

**n. STUDENT PERFORMANCE OBJECTIVES:**

The basic objectives are that the student develop an understanding of the methods studied, demonstrate a knowledge of the facts presented and show an ability to use these in the solution of problems. To accomplish these objectives, exercises are assigned. Test questions will be of near equal difficulty to questions assigned in the exercise. 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.

**m. TOPICS TO BE COVERED:**

1.	Fundamental Math Operations	16 periods
2.	Percent and Percentages	9 periods
3.	Measurement	9 periods
4.	Ratio and Proportion	5 periods
5.	Powers and Roots	5 periods
6.	Formula Applications	7 p <sup>TM</sup> ds
		51 periods

**IV. LEARNING ACTIVITIES:**

**REQUIRED RESOURCES:**

1.0	Whole Numbers	
1.1	Whole Numbers	Units 1-4,p.1-8
1.2	Common fractions	Units 5-8,p.9-28
1.3	Decimal fractions	Units 9-15,p.29-56

**COURSE NAME**

**CODE**

**IV. LEARNING ACTIVITIES:**

**REQUIRED RESOURCES:**

2.0	Percent and Percentages	Calculator
2.1	Percentage	Units 16-17(p.57-62)
2.2	Grades (Inclines)	Units 18(p.53)
2.3	Discounts	Units 19(p.64-66)
2.4	Interest and Taxes	Units 21(p.70-71)
2.5	Percent of error and Averages	Units 22(p. 72-73)
3.0	Measurement	
3.1	British-SI Metric Conversions	Units 23-24(p. 74-77)
3.2	Circular Measurement	Units 27(p.85-86)
3.3	Angular Measurement	Units 28(p.87-90)
3.4	Area and Volume	Units 29(p.91-93)
3.5	Time and Speed Calculations	Units 30(p.94-95)
4.0	Ratio and Proportion	
4.1	Ratio	Units 31(p.96-102)
4.2	Proportion	Units 32(p. 103-109)
5.0	Powers and Roots	Calculator
5.1	Powers	Unit 33(p.110-111)
5.2	Roots	Units 34(p. 112-114)

## COURSE NAME

## CODE

6.0	<u>Formula Applications</u>	
6.1	Formulas for Mechanical Applications	Units35-38(p.115- 123)
6.2	Cylindrical Volume Measurement	Units39(p.124-125)
6.3	Ohms Law	Units40(p.126-127)

**VL REQUIRED STUDENT RESOURCES:**

1. Text: "Practical Problems in Mathematics for Automotive Technicians". by Moore George.
2. Calculator: (Recommended) Sharp Scientific calculator EL-531G. The use of some kinds of calculators may be restricted during Tests.

**Vn. EVALUATION PROCESS/GRADDJG SYSTEM:****MAJOR ASSIGNMENTS AND TESTS**

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

At the discretion of the instructor, there may be a mid-term exam and there may be a final exam, each of which can contribute up to 30% of the overall mark.

The instructor will provide you with a list of test dates. Tests may be scheduled out of regular class time.

**ATTENDANCE**

It is your responsibility to attend all classes during the semester. Research indicates there is a high correlation between attendance and student success.

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

**Unexcused absence from a test may result in a mark of zero ("0").** Absence may be excused on compassionate grounds such as verified illness or bereavement. On return from an excused absence, you should ask your instructor to schedule the writing of a make-up test. Failure to do so will be considered as an unexcused absence.

## COURSE NAME

## CODE

## METHOD OF ASSESSMENT (GRADING METHOD)

A+	Consistently outstanding	(90% - 100%)
A	Outstanding Achievement	(80% - 89%)
B	Consistently above average achievement	(70% - 79%)
C	Satisfactory or acceptable achievement in all areas subject to assessment	(55% - 69%)
X or R	A temporary grade, limited to situations with extenuating circumstances, giving a student additional time to complete course requirements <b>(See below)</b>	(45% - 54%)
R	Repeat - The student has not achieved the objectives of the course, and the course must be repeated	(0% - 44%)
CR	Credit exemption	

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 falling mark in another test.

**Make-Up Test (if applicable)**

An "X" grade may be assigned at the end of the regular semester if you have met ALL of the following criteria:

- an overall average between 45% and 54% was achieved
- at least 50% of the tests were passed
- at least 80% of the scheduled classes were attended
- all of the topic tests were written

If you are assigned an "X" grade, you may convert it to a "C" grade by writing a make-up test on topics agreed to by the instructor. This test will be available at the time agreed to by your instructor.

At the end of the regular term, it is your responsibility to obtain your results from your instructor and, in the event of an "X" grade, to inquire when the make-up test will be available.

The score you receive on this make-up test will replace your original test score and be used to re-calculate your weighted average. If the re-calculated average is 55% or greater, a "C" grade will be assigned. If the re-calculated average is 54% or less, an "R" grade will be assigned.

COURSE NAME

CODE

**METHOD OF ASSESSMENT (GRADING METHOD)****"R" and "X" Grades at 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 be carried into the next semester.

**"R" Grades during the Semester**

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

**Vm. SPECIAL NOTES:**

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, leaming disabilities), are encouraged to discuss required accommodations with the professor and/or contact the Special Needs OfBce.

**Advanced Standing**

Students who have completed an equivalent post-secondary course must bring relevant documents to the Coordinator, Mathematics Department:

- a copy of course outHne
- a copy of the transcript verifying successflil completion of the equivalent course

Note: A copy of the transcript must be on file in the Registrar's Office.

**K. PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the instructor or the Prior Leaming Assessment Office (H0240).