

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

COURSE OUTLINE

COURSE TITLE; MATHEMATICS

CODE NO.: MTH153-3 SEMESTER! TWO

PROGRAM: HEAVY EQUIPMENT (DIESEL)

AUTHOR: JOHN GIGUERE

DATE: NOVEMBER 1993 PREVIOUS OUTLINE DATED AUGUST 1992

APPROVED:   
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**COURSE NAME**

**COURSE NUMBER**

**TOTAL CREDIT HOURS: 51**

**PREREQUISITE(S):** As per College Calendar.

**EXEMPTION CREDIT:** A student who has received a passing grade in Grade 12 Advanced math (MAT-4A) is eligible for a credit in this course.

**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.

**II. 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 exercises. 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. Fundamental Math Operations	16 periods
2. Percent and Percentages	9 periods
3. Measurement	9 periods
4. Ratio <b>and</b> Proportion	5 periods
5. Powers <b>and</b> Roots	5 periods
6. Formula <b>Applications</b>	<u>7 periods</u>
	51 periods

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**COURSE NAME****COURSE NUMBER****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

2.0 Percent and Percentages

Calculator

2.1 Percentage

Units 16-17 (p. 57-62)

2.2 Grades (Inclines)

Unit 18 (p. 63)

2.3 Discounts

Unit 19 (p. 64-66)

2.4 Interest and Taxes

Unit 21 (p.70-71)

2.5 Percent of error and Averages

Unit 22 (p,72-73)

3.0 Measurement

3.1 British-SI Metric Conversions

Units 2 3-24 (p.74-77)

3.2 Circular Measurement

Unit 27 (p. 85-86)

3.3 Angular Measurement

Unit 28 (p. 87-90)

3.4 Area and Volume

Unit 29 (p. 91-93)

3.5 Time and Speed Calculations

Unit 30 (p. 94-95)

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**COURSE NAME****COURSE NUMBER****IV. LEARNING ACTIVITIES:****REQUIRED RESOURCES:**4.0 Ratio and Proportion

4.1 Ratio

Unit 31 (p. 96-102)

4.2 Proportion

Unit 32 (p. 103-109)

5.0 Powers and Roots

Calculator

5.1 Powers

Unit 33 (p. 110-111)

5.2 Roots

Unit 34 (p. 112-114)

6.0 Formula Applications6.1 Formulas for Mechanical  
Applications

Units 35-38 (p. 115-123)

6.2 Cylindrical Volume Measurement

Unit 39 (p. 124-125)

6.3 Ohms Law

Unit 40 (p. 126-127)

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**V, METHOD OF EVALUATION:**

Students will write a pretest and post-test covering topics 1-3. The pretest will be administered early in the semester. A grade of 70% or more will exempt the student from writing the post-test and attending classes for topics 1-3. Similarly, a second pretest and post-test will cover topics 4-5. This pretest will be administered near midterm. A grade of 70% or more will exempt the student from writing the post-test and attending classes for topics 4-5.

Grading

A+ - 90- 100%  
A = 80- 89%  
B = 70- 79%  
C = 55- 69%  
  
R = 0- 54%

A passing grade will be based on a minimum average grade of 55%. Students obtaining an average grade of 45-55% may be allowed to write a supplementary examination. For eligibility, please consult the Mathematics Department Evaluation Guidelines.

**VI. REQUIRED STUDENT RESOURCES:**

1. Textt "Practical Problems in Mathematics for Automotive Technicians", by Moore, George.
2. Calculator: Recommended: Sharp Scientific calculator EL-531G

Note: Any good Scientific Calculator is acceptable but some difficulties have been encountered with other types. Also, more advanced calculators have created problems for many of the students resulting in lost time in tests.

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**VII. ADDITIONAL RESOURCE MATERIALS AVAILABLE AS FOLLOWS:**

College Library:

The library has many comparable textbooks which may give you another perspective on a particular topic.

Under the Library of Congress Catalogue System - Section: QA

The Learning Assistance Center (L.A.C.) has a PEER TUTORIAL system in place for those who feel they need tutoring. The L.A.C. also has some Computer based Math tutorial programs available to the student.

**VIII. 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.