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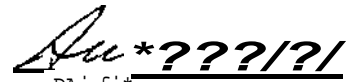
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: MATHEMATICS

CODE NO.: MTH 099-4   **SEMESTER:**

PROGRAM: FORESTRY

AUTHOR: K. PELEW

DATE: JUNE 1991   **PREVIOUS OUTLINE DATED:** JUNE 1989

APPROVED: DEAN _____   *???/?/*
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MATHEMATICS   MTH 099-4 FORESTRY

COURSE NAME   COURSE NUMBER

I. PHILOSOPHY/GOALS:

 The objectives of this course are to increase the student's speed,
accuracy and skill in performing basic arithmetic calculations and
operations on algebraic expressions, as well as the solution of
practical problems involving linear equations in one variable.

A survey of plane and solid geometry will enable the student to
identify a variety of figures encountered, and to determine their
perimeters, areas, volumes and weights appropriately in both English
and SI units.

II. STUDENT PERFORMANCE OBJECTIVES:

The basic objectives are that the student will 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 to
reinforce concepts learned and to show their relevance in forestry
computations. Test questions 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 below.

III. TOPICS TO BE COVERED

1. Review of Whole Numbers, Fractions, Decimals and Percentage

2. Rounding, Estimation and Metrication

3. Plane Geometry

4. Solid Geometry

5. Algebra

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IV. LEARNING ACTIVITIES	REQUIRED RESOURCES:
	Text: ESSENTIALS OF MATHEMATICS. Fifth Edition. Russel & Vernon Person
	EXERCISES are to be done without the aid of an electronic calculator.
1.0 REVIEW OF ARITHMETIC	
1.1 Whole Numbers	1.1 (pg. 8-9) 1.2 (pg. 17-18)
1.2 Fractions	2.2 (pg. 23-24) 2.3 (pg. 26-27) 2.4 (pg. 32-33) 2.5 (pg. 37-38)
1.3 Decimal Fractions	3.1 (pg. 44) 3.2 (pg. 46) 3.4 (pg. 51)
1.4 Percentage	4.1 (pg. 62-63) 4.2 (pg. 64-65) 4.3 (pg. 66-67) 4.4 (pg. 68) 4.5 (pg. 71-73)

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IV. LEARNING ACTIVITIES	**REQUIRED RESOURCES:**
2.0 ROUNDING, ESTIMATION AND METRICATION	EXERCISES
2.1 Approximate and Exact Numbers	Handout assignment
2.2 Significant Digits	
2.3 Metric prefixes	Handout assignment
2.4 Metric units of length	
2.5 Conversion between metric and Imperial units of length	6-1 text (pg. 90-91) 6-2 text (pg. 93)
2.6 Metric units of capacity	Handout assignment
2.7 Conversion between metric & Imperial units of capacity	
2.8 Metric units of mass	Handout assignment
2.9 Conversion between metric & Imperial units of mass	6-5 text (pg. 100-101)
3.0 PLANE GEOMETRY	EXERCISES
3.1 Definitions and Theorems	Chapter 26 text(pg. 497-508) Heywood (pg. 414-419)
3.2 Perimeter and Area of a Rectangle, Square & Parallelogram	27-1 text (pg. 516-517)
3.3 Perimeter and Area of a Triangle & Trapezoid	27-2 text (pg. 523-524)
3.4 The Pythagorean Rule	28-1 text (pg. 534-535)
3.5 The Circle	29-1 text (pg. 545-548) Heywood (pg. 420-423)

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IV.   LEARNING ACTIVITIES: **REQUIRED RESOURCES:**

4.0   <u>SOLID GEOMETRY</u>   EXERCISES

4.1   Volume and lateral area   30-1   (Pg.553-555)
      of a Prism

4.2   Volume and lateral area   31-1   (pg. 564-566)
      of a Cylinder

4.3   Volume and lateral area   32-1   (pg. 573-575)
      of a Pyramid

4.4   Volume and lateral area   Handout exercises
      of a Frustum of a Pyramid

4.5   Volume and lateral area
      of a Cone

4.6   Volume and lateral area
      of a Frustum of a Cone

4.7   Volume and surface area   33-1   (pg. 583-584)
      of a Sphere

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IV. **LEARNING ACTIVITIES:**   **REQUIRED RESOURCES:**

5.0 <u>ALGEBRA</u>   EXERCISES:

5.1 Addition and subtraction   9-1   (Pg. 146-147)
     of monomials and
     polynomials

5.2 Multiplication and   10-1   (pg. 158-159)
     division of monomials
     Multiplication and
     division of a polynomial
     by a monomial

5.3 Multiplication of a   10-2   (pg. 162-163)
     polynomial by a
     polynomial

5.4 Division of a polynomial   10-3   (pg. 165-166)
     by a polynomial

5.5 Solving linear equations   11-2   (pg. 183-184)
     in one variable   11-3   (pg. 185-186)

5.6 Solving word problems by   12-2   (pg- 195-196)
     using linear equations in   12-4   (pg. 198-199)
     one variable   12-6   (pg. 203-204)

5.7 Factoring by removal of a   13-3   (pg- 214)
     common factor

5.8 Factoring the difference   13-5   (pg. 218)
     between two squares

5.9 Factoring trinomials that   13-7   (pg. 221)
     are perfect squares

5.10 Factoring trinomials of   13-11   (pg- 226)
     the type $X^2 + px + q$

5.11 Factoring trinomials of   13-13   (pg. 229)
     the type $ax^2 + bx + c$

5.12 Factoring the sum & | 13-14   (pg. 230)
     difference of two cubes

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V.   METHOD OF EVALUATION

The final grade will be derived from the results of five topic tests
each of which will constitute 20% of the final mark. The grading
system used will be as follows:

           A+ - 90-100%
           A - 80- 89%
           B - 65- 79%
           C - 55- 64%
           R - 0 -54%

A passing grade will be based on a minimum grading of 55%.

VI.   REQUIRED STUDENT RESOURCES

Textbook: "Essentials of Mathematics"; Fifth Edition. Person
Electronic calculator which includes trigonometric functions

VII.   ADDITIONAL RESOURCE MATERIALS

Consult the clerk(s) in the Learning Resource Centre and/or the
Learning Assistance Centre.

VII.   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 the students.