DOC.#442

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: MATHEMATICS

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

PROGRAM: FORESTRY/G.A.S

AUTHOR: K. PELEW

DATE: JULY 1993 **PREVIOUS OUTLINE DATED:** JULY 1992

APPROVED: **DEAN** _____ '7/^3

MATHEMATICS — COURSE NAME

MTH 099-4 FORESTRY — COURSE NUMBER

TOTAL CREDIT HOURS: 85

PREREQUISITES: Grade 11 Technical Mathematics (MTT3G)

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	**TIME FRAME:**
1. Review of Whole Numbers, Fractions, Decimals and Percentage	10 hours
2. Rounding, Estimation and Metrication	21 hours
3. Plane Geometry	16 hours
4. Solid Geometry	18 hours
5. Algebra	20 hours
	85 hours

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IV. LEARNING ACTIVITIES

REQUIRED RESOURCES:

Text: ESSENTIALS OF MATHEMATICS. Fifth Edition. Russel & Vernon Person

EXERCISES for Topic I 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)** **(pg- 17--18)**
1.2 Fractions	2, 2, 2, 2	**(pg- 23--24)** **(pg- 26--27)** **(pg- 32--33)** **(pg- 37--38)**
1.3 Decimal Fractions	3, 3, 3	**(pg- 44)i** **(pg- 46)i** **(pg- 51)I**
1.4 Percentage	4.1 4.2 4.3 4.4 4.5	**(pg- 62--63)** **(pg- 64--65)** **(pg- 66--67)** **(pg- 68;1** **(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	Handout assignment
2.3	Metric prefixes	Handout assignment
2.4	Metric units of length	Handout assignment
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 SOLID GEOMETRY	EXERCISES	
4.1 Volume and lateral area of a Prism	30-1	(Pg.553-555)
4.2 Volume and lateral area of a Cylinder	31-1	(pg. 564-566)
4.3 Volume and lateral area of a Pyramid	32-1	(pg. 573-575)
4.4 Volume and lateral area of a Frustum of a Pyramid	Handout exercises	
4.5 Volume and lateral area of a Cone	Handout exercises	
4.6 Volume and lateral area of a Frustum of a Cone	Handout exercises	
4.7 Volume and surface area of a Sphere	33-1	(pg. 583-584)

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

5.0	ALGEBRA	EXERCISES:	
5.1	Addition and subtraction of monomials and polynomials	9-1	(Pg. 146-147)
5.2	Multiplication and division of monomials Multiplication and division of a polynomial by a monomial	10-1	(pg. 158-159)
5.3	Multiplication of a polynomial by a polynomial	10-2	(pg. 162-163;
5.4	Division of a polynomial by a polynomial	10-3	(pg. 165-166)
5.5	Solving linear equations in one variable	11-2 11-3	(pg. 183-184) (pg. 185-186)
5.6	Solving word problems by using linear equations in one variable	12-2 12-4 12-6	(pg. 195-196) (pg. 198-199) (pg. 203-204)
5.7	Factoring by removal of a common factor	13-3	(pg- 214)
5.8	Factoring the difference between two squares	13-5	(pg- 218)
5.9	Factoring trinomials that are perfect squares	13-7	(pg- 221)
5.10	Factoring trinomials of the type $X^2 + px + q$	13-11	(pg- 226)
5.11	Factoring trinomials of the type $ax^2 + bx + c$	13-13	(pg- 229)
5.12	Factoring the sum & difference of two cubes	13-14	(Pg- 230)

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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.