SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: PRE-VOCATIONAL MATH & LAB

CODE NO.:   MTH 094

PROGRAM: COLLEGE ENTRANCE PROGRAM

SEMESTER: ONE

DATE: SEPTEMBER 1990

CHOR: JOHN MARTIN

NEW: X   **REVISION:**

APPROVED   **DATE:**   1990-09-18

Nadeary Koch, Dean
School of Arts & Gen. Education

- E5TRUCTOR: JOHN MARTIN
CREDITS: 5

PHILOSOPHY/GOALS;

This course will prepare the student for entry to College Preparatory Mathematics.

The student will be introduced to the topics of basic algebra, geometry, ratio and proportion, mensuration of place figures and solid forms, and solution of mathematical problems.

OBJECTIVES:

Upon successful completion of this course, the student will have developed skills in the following:

1. SIGNED NUMBERS:

Addition, subtraction, multiplication of positive and negative numbers.

POWERS OF TEN:

Multiples of ten expressed as powers of ten with positive or negative exponents.

Zero exponent as a power of ten. Concept of reciprocals.

Multiplication and division of powers of ten.

Multiplication and division of regular numbers by powers of ten.

Standard notation.

3. NON-FRACTIONAL EQUATIONS:

Solution of non-fractional equations using the addition axiom and multiplication axiom for basic equations.

Solution of equations by combining number terms and/or letter terms to obtain a basic equation.

Grouping and the distributive principle.

Interchange and opposing principle for equations.

4. ALGEBRAIC FRACTIONS:

Addition and subtraction of fractions with like denominators.

Addiction and subtraction of fractions with unlike denominators.

Multiplication and division of fractions. Converting mixed numbers to fractions and fractions to mixed numbers.

Operations with fractions containing letters.

Divisions which involve zero.

5. FRACTIONAL EQUATIONS:

Solution of fractional equations using the multiplication axiom.

Solution of equations when one or both sides contain fractions,

^iution of equations with "zero" or "one" on one side.

Clearing of fractions in equations.

Solutions of equations with complex numerators or denominators.

6. INTRODUCTION TO GRAPHING:

Equations containing two variables.

Tables and solutions of two-variable equations.

The coordinate system and plotting points.

7. FORMULA REARRANGEMENT:

Letters in formulas.

Identifying terms in formulas.

Rearranging non-fractional formulas.

Rearranging formulas containing fractions.

^{mu}ree basic steps used in solving formulas.

8. SPECIAL PRODUCTS:

Multiplication of letter terms.

Multiplication of combined number and letter terms.

Multiplication of binomial terms using the "Foil Method". (Distributive principle.)

Division of number and letter terms.

9. FACTORING:

The distributive principle as applied to two or more terms.

Factoring by use of the distributive principle.

10. SQUARES AND SQUARE ROOTS:

P.r£ect squares of „umbers an_d L t f r t.™.

Square roots of perfect squares.

Square roots of numbers which are not perfect squares.

Right-angled triangles and the Pythagorean Theorem.

Finding the height or sides in equilateral or isosceles triangles.

11. PERIMETER AREA AND VOLUME:

Perimeters of squares, triangles, rectangles, and circumference of circle

Areas of squares, triangles, rectangles, parallelograms, trapezoids, and circles.

Volumes of cubes, rectangular solids, and prisms.

12. RATIO AND PROPORTION:

Concept of ratio.
Ratios which are in proportion to each other.
Similar triangles.
Problems involving pylleys and gears, rates of speech.

13. GEOMETRY:

Geometrical constructions of perpendicular lines, parallel lines and triangles.

Measurement of angles.

Construction of angles using ruler and compasses only.

Altitudes of triangles.

14. WORD PROBLEMS!

Solutions of word problems involving percentages, money, ages, rates of speed, geometrical figures, and mixtures.

REQUIRED STUDENT RESOURCES;

 pT: <u>Basic Algebra</u> . . . available in Learning Assistance Centre
                           as reference.

METHOD OF EVALUATION

Students will be assessed on the following:
    Attendance and Participation . . . 10%
    Classroom Assignments 10%
    Mid-Term Test. 40%
    Final Test. 40%
COLLEGE GRADING SYSTEM:
        A+   =   90 - 100%
        A   80 - 89%
        B   70 - 79%
        C   60 - 69%
        R   =   Below 60% (Must Repeat Course)