

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

COURSE OUTLINE

COURSE TITLE: MATHEMATICS

CODE NO.: MTH 122-4 **SEMESTER:**

PROGRAM: COMPUTER PROGRAMMER

AUTHOR: R. HAMEL

DATE: JULY 1995 **PREVIOUS OUTLINE DATED:** AUGUST 1994

APPROVED:

DEAN

DATE

MATHEMATICS

MTH 122-4

COURSE NAME

COURSE NUMBER

TOTAL CREDIT HOURS: 48

PREREQUISITE: MTH 111

SUBSTITUTE: NONE

I. PHILOSOPHY/GOALS:

This course presents mathematics needed in computer studies. Emphasis is placed on developing logical thinking skills and an algorithmic approach to problem-solving.

II. TERMINAL PERFORMANCE OBJECTIVES:

After studying the indicated topics, the student should be able to perform the following objectives:

Topic 1 - Basic Algebra Review

1. Number sets.
2. Properties of integers and real numbers.
3. Exponents and radicals.
4. Order of operations.
5. Inequalities and absolute values.

Topic 2 - Number Systems

1. Number systems.
2. Review decimal number system.
3. Binary number system.
4. Octal number system.
5. Hexadecimal number system.
6. Conversion between number systems.
7. Binary addition.
8. Complementation.
9. Binary subtraction.

Topic 3 - Computer Considerations

1. Significant digits, accuracy, precision, rounding.
2. Scientific notation.
3. Normalized exponential form.
4. Integer representation.
5. Floating point representation.

Topic 4 - Sets

1. Sets and elements.
2. Subsets.
3. Operations on sets.
4. Venn diagrams.
5. Basic properties of sets.

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Topic 5 - Logic

1. Simple and compound statements.
2. Truth tables: AND, OR, NOT, NAND, NOR, EOR
3. Conditional and biconditional statements.
4. Properties of logic.
5. Logical implication.
6. Arguments.

Topic 6 - Boolean Algebra

1. Circuits.
2. Combinations off switches.
3. Properties of networks.
4. Simplification of networks.
5. Logic circuits.

Topic 7 - Computer Logic and Programming Structures

1. Algorithms.
2. Pseudocode.
3. Flow charts.
4. Decision Structures.
5. Repetition Structures.

III. TOPICS TO BE COVERED:

TIME FRAME (hours)

- | | |
|---|---|
| 1. Basic Algebra | 3 |
| 2. Number Systems | 9 |
| 3. Computer Considerations | 6 |
| 4. Sets | 6 |
| 5. Logic | 7 |
| 6. Boolean Algebra | 9 |
| 7. Computer Logic & Programming Structure | 5 |