

**THE SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



***COURSE OUTLINE***

<b>COURSE TITLE:</b>	Computer Mathematics		
<b>CODE NO. :</b>	MTH122-4	<b>SEMESTER:</b>	One
<b>PROGRAM:</b>	Computer Programmer		
<b>AUTHOR:</b>	Math Department		
<b>DATE:</b>	June 2012	<b>PREVIOUS OUTLINE DATED:</b>	May 2011
<b>APPROVED:</b>	"Brian Punch"		June/12
	_____		_____
	<b>CHAIR</b>		<b>DATE</b>
<b>TOTAL CREDITS:</b>	4		
<b>PREREQUISITE(S):</b>	None		
<b>HOURS/WEEK:</b>	3 hours/week		

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*For additional information, please contact Brian Punch, Chair*  
*Environment/Design/Business in the School of Environment, Technology, and Business*  
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**I. COURSE DESCRIPTION:**

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

**II. LEARNING OUTCOMES:**

After studying each of the indicated topics, the student should be able to perform necessary applications to solve related problems with in program:

**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
6. Metric measurement

**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
10. Hexadecimal addition and subtraction

**Topic 3: Computer Considerations**

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

**II. LEARNING OUTCOMES (Continued):****Topic 4: Sets**

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

**Topic 5: Logic**

1. Simple and compound statements
1. Truth tables: AND, OR, NOT, NAND, NOR, EOR
3. Conditional and bi-conditional statements
4. Properties of logic
5. Logical implication

**Topic 6: Boolean Algebra**

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

<b>III. TOPICS TO BE COVERED:</b>	<b>Textbook Reference</b>	<b>Approximate Time Frame</b>
1. Basic Algebra	Chapter 1	6 hours
2. Number Systems	Chapters 5 & 6	9 hours
3. Computer Considerations	Chapter 7	6 hours
4. Sets	Chapter 8	8 hours
5. Logic	Chapter 9	8 hours
6. Boolean Algebra	Chapter 10	8 hours

**IV. REQUIRED RESOURCES / TEXTS / MATERIALS:**

1. Textbook: "Mathematics for Data Processing", Robert N. McCullough, ***Third Edition***, Prentice-Hall.
3. Calculator: (Recommended) SHARP Scientific Calculator EL-546V. The use of some kinds of calculators may be restricted during tests.

**V. EVALUATION PROCESS/GRADING SYSTEM:**

<b>Evaluation Device</b>	<b>Topics Covered</b> (topic numbers refer to the course outline)	<b>% weight of Final Average</b>
Test 1	1	10%
Test 2	2	15%
Test 3	3	10%
Test 4	4	15%
Test 5	5	15%
Test 6	6	15%
Assignments	Topics 1-6	20%

**METHOD OF ASSESSMENT (GRADING METHOD)**

<b>Grade</b>	<b>Definition</b>	<b>Grade Point Equivalent</b>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

**Unexcused absence from a test may result in a mark of zero (“0”).** Absence may be excused on compassionate grounds such as verified illness or bereavement. On return from an excused absence, you should ask your instructor to schedule the writing of a make-up test. Failure to do so will be considered as an unexcused absence.

## VI. SPECIAL NOTES:

### Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

If you are absent from class, it is your responsibility to find out what work was covered and assigned and to complete this work before the next class. Your absence indicates your acceptance of this responsibility.

## VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.