

I. COURSE DESCRIPTION:

This first level mathematics course for the pre-technology program begins with a review of fundamental concepts including arithmetic operations and concepts in measurement, ratio, proportion, and percents. This is followed by an introduction to algebra and to graphing with a focus on linear relationships.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

Unit 1

1. Add, subtract, multiply, and divide whole numbers, decimals, and signed numbers *with and without* a calculator.
2. Evaluate expressions following the order of operations.
3. Differentiate between exact and approximate numbers.
4. Apply the rules of rounding and determining significant digits.
5. Convert numbers between decimal form and scientific notation.
6. Perform arithmetic operations on numbers in scientific notation.
7. Solve problems by translating english sentences into mathematical equations.

Unit 2

1. Define the types of fractions.
2. Convert between improper fractions and mixed numbers.
3. Convert between fractions and decimals.
4. Add, subtract, multiply, and divide fractions *with and without* a calculator.
5. Solve applied problems with fractions by applying problem solving strategies and arithmetic skills.

Unit 3

1. Solve problems involving ratios, proportions, and percents.
2. Utilize metric system prefix names and symbols.
3. Reduce units of measurement within systems.
4. Convert units of measurement from one system to another.

Unit 4

1. Simplify algebraic expressions using the laws of exponents.
2. Convert powers between exponential and radical form.
3. Simplify expressions by removing grouping symbols and combining like terms.
4. Add, subtract, and multiply algebraic expressions.
5. Divide polynomials by monomials.
6. Solve linear equations for one variable.
7. Solve literal equations for the indicated variable.

Unit 5

1. Graph points, lines, and curves on the rectangular coordinate system.
2. Find the slope and intercepts of a line.
3. Develop the equation for a line.
4. Find approximate graphical solutions to a variety of problems.

III. TOPICS:

1. Review of Arithmetic	A.1-A.7; 1.1-1.3, 1.5
2. Scientific Notation and Significant Digits	1.6
3. Ratios and Proportions	4.5
4. Percentages	A.8
5. Units of Measurement	2.1-2.3
6. Exponents	1.4; 10.1-10.2
7. Introduction to Algebra	3.1-3.5
8. Solving Equations	4.1-4.2
9. Graphing	5.2-5.4; 5.6

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

1. Washington, A. J., Triola, M.F., & Reda, E. E. (2008). *Introduction to Technical Mathematics with Math XL Student Access Kit*, 5th ed. Toronto: Pearson Addison Wesley
2. Calculator: (Recommended) SHARP Scientific Calculator EL-531W. *The use of some kinds of calculators, cell phones, and other electronic devices may be restricted during tests.*

V. EVALUATION PROCESS/GRADING SYSTEM:

Evaluation Methods:

Unit 1: Arithmetic, Significant Digits, Scientific Notation
(no calculators allowed!)

Quizzes (3 in total) – 20%

Unit 2: Fractions

Quizzes (3 in total) – 10%

Unit Test – 10%

Unit 3: Ratios, Proportions, Percents, and Unit Conversions

Quizzes (3 in total) – 10%

Unit Test – 10%

Unit 4: Introduction to Algebra

Quizzes (4 in total) – 10%

Unit Test – 10%

Unit 5: Graphing and Linear Systems

Quizzes (2 in total) – 10%

Unit Test – 10%

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
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.

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.

VII. COURSE OUTLINE ADDENDUM:

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