# SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

## SAULT STE. MARIE, ONTARIO



**SAULT COLLEGE**

## COURSE OUTLINE

**COURSE TITLE:** Pre-Technology Math II

**CODE NO. :** MTH161      **SEMESTER:** 2

**PROGRAM:** Pre-Technology

**AUTHOR:** Mathematics Department

**DATE:** Jan 2012     **PREVIOUS OUTLINE DATED:** Jan 2011

**APPROVED:**

"B.Punch"

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               **CHAIR**                          **DATE**

**TOTAL CREDITS:** 3

**PREREQUISITE(S):** MTH160

**HOURS/WEEK:** 3 hours per week

Pre-Technology Math II                                                                 MTH161

## I.      COURSE DESCRIPTION:

This course is a continuation of MTH160-3 (from Semester One) for pre-technology students.  Topics of study include: quadratic, exponential and logarithmic equations; geometry, and trigonometric functions.  A treatment of trigonometry of right and oblique triangles with applications is included. This course also includes an introduction to statistics.


## II.     LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1.     Solve quadratic equations by factoring, using quadratic formula, and graphically.

       Potential Elements of the Performance:

       • Identify the quadratic equation
       • Solve quadratic equations by factoring
       • Solve quadratic equations using the quadratic formula
       • Graph the quadratic function


2.     Solve exponential and logarithmic equations.

       Potential Elements of the Performance:

       • Recognize an exponential equation
       • Identify the base in an exponential equation
       • Evaluate  and graph exponential functions
       • Review logarithms and natural logarithms
       • Solve exponential and logarithmic equations


3.     Solve problems involving perimeter, area, volume, and surface area, for simple, composite shapes and figures.

       Potential Elements of the Performance:

       • Identify shapes
       • Solve for perimeter, area, volume, and surface area for various composite shapes and figures

4.  Solve problems using primary trigonometric ratios, the sine law, and the cosine law.

Potential Elements of the Performance:

- Evaluate angles and their measure
- Solve for right angle applications and use the Pythagorean Theorem
- Discuss similar triangles and the trigonometric ratios
- Determine the values and applications of trigonometric ratios
- Review the law of Sines and the law of Cosines
- Introduce vectors, vector components, vector addition and their application.

5.  Interpret, analyze and summarize two variable data graphically and numerically using a variety of tools and strategies.

Potential Elements of the Performance:

- Introduction to data analysis
- Create various representations of data graphically
- Measure central tendencies, spread and variation
- Introduce probability and its applications

## III.   TOPICS:

1.  Quadratic Equations
2.  Exponential and Logarithmic Functions
3.  Geometry
4.  Right Triangle Trigonometry
5.  Oblique Triangle Trigonometry
6.  Introduction to Data Analysis

## 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. *The use of some kinds of calculators, cell phones, and other electronic devices may be restricted during tests.*

## V.     EVALUATION PROCESS/GRADING SYSTEM:

Evaluation Method:

   Unit 1: Quadratic Functions
   Homework - 4%
   Unit Test - 16%


Unit 2: Exponential and Logarithmic Functions
   Homework 4%
   Unit Test - 16%


Unit 3: Geometry
   Homework – 4%
   Unit Test - 16%


Unit 4: Triangle Trigonometry
   Homework – 4%
   Unit Test - 16%


Unit 5: Data Management
   Homework – 4%
   Unit Test - 16%


The following semester grades will be assigned to students:

| Grade | Definition | Grade Point Equivalent |
|---|---|---|
| A+ | 90 – 100% | 4.00 |
| A | 80 – 89% | |
| B | 70 - 79% | 3.00 |
| C | 60 - 69% | 2.00 |
| D | 50 – 59% | 1.00 |
| F (Fail) | 49% and below | 0.00 |

| | |
|---|---|
| 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.