# SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

## SAULT STE. MARIE, ONTARIO

**SAULT COLLEGE**

# COURSE OUTLINE

**COURSE TITLE:** Trades Mathematics

**CODE NO. :** MTH106      **SEMESTER:** 13F

**PROGRAM:** Construction Carpentry, Home Construction

**AUTHOR:** Mathematics Department

**DATE:** Fall 2013     **PREVIOUS OUTLINE DATED:**

**APPROVED:**

                              "Colin Kirkwood"         June 12/13

                                   **DEAN**            **DATE**

**TOTAL CREDITS:** 3

**PREREQUISITE(S):** N/A

**HOURS/WEEK:** 3

Trades Mathematics                                                                                      MTH106

## I.      COURSE DESCRIPTION:

This course for construction techniques and home inspection technician programs begins with a review of fundamental concepts including arithmetic operations.  Some theoretical concepts and topics in proportion and variation, measurement, geometry, and trigonometry will be covered.  These concepts and topics will be reinforced by the use of practical problems to make the current topic relevant to the students' needs.  Aspects of business math pertaining to the construction field will be introduced.

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

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

1.  Solve arithmetic problems of whole numbers, fractions and decimals without the use of a calculator as they apply to the trades. .
2.  Create ratios, proportions and percentages and solve problems using a calculator as they apply to the trades.
3.  Use ratios and conversion rates to do measurements and measurement conversions on trades related problems..
4.  Solve for unknowns and algebraic equations.
5.  Solve practical trade problems related to area, perimeter, volumes of various geometric shapes, and solids.
6.  Use trigonometry to solve practical trade related problems.
7.  Create graphs and perform other related statistical information as they relate to the trades industry.

Trades Mathematics                                                    MTH106

1.  Solve arithmetic problems of whole numbers, fractions and decimals without the use of a calculator as they apply to the trades.

    Potential Elements of the Performance:

    1) Perform addition, subtraction, multiplication and division of whole numbers without the use of a calculator.
    2) Recite and be able to create the multiplication times' table without the use of a calculator.
    3) Perform arithmetic using order of operations.
    4) Perform addition, subtraction, multiplication and division of fractions.
    5) Perform addition, subtractions, multiplication and division of decimal numbers.

2.  Create ratios, proportions and percentages and solve problems using a calculator as they apply to the trades.

    Potential Elements of the Performance:

    1) Create ratios and proportions.
    2) Perform special applications of ratios and proportions.
    3) Solve trades related problems using ratios and proportions.
    4) Create percentages.
    5) Solve trades related problems using percentages.

3.  Use ratios and conversion rates to do measurements and measurement conversions on trade related problems.

    Potential Elements of the Performance:

    1) Apply ratios and conversion rates as they relate to conversions.
    2) Work with various units of measurement such as Imperial/ English/British, US customary, and the SI metric units.
    3) Solve practical measurement conversion problems between various units of measure.

Trades Mathematics                                          MTH106

**4.** Solve for unknowns and algebraic equations.

Potential Elements of the Performance:

1) Perform arithmetic on signed numbers.
2) Work with exponents and square roots.
3) Add and subtract algebraic expressions.
4) Multiply and divide algebraic expressions.
5) Use scientific notation.
6) Solve word problems and algebraic expressions

**5.** Solve practical trade problems related to area, perimeter, volumes of various geometric shapes, and solids.

Potential Elements of the Performance:

1. Determine area, perimeter and volume of various geometric shapes and solids.
2. Perform angle measurement.
3. Work with polygons, triangles, hexagons, irregular polygon, circles, prisms, pyramids, cylinders, spheres, and cones.
4. Work with angles and triangles.
   .

**6.** Use trigonometry to solve practical trade related problems.

Potential Elements of the Performance:

1. Use trigonometric ratios to solve trade related problems.
2. Solve right triangles.
3. Work with oblique triangles.

**7.** Create graphs and perform other related statistical information as they relate to the trades industry.

Potential Elements of the Performance:

1. Read and create graphs.
2. Use statistical tools, techniques to and methods to perform data analysis.

Trades Mathematics                                                    MTH106

### III.   TOPICS:

1.   Arithmetic
2.   Ratios, proportions and percentages
3.   Measurements and conversions
4.   Algebra
5.   Geometry
6.   Trigonometry
7.   Statistics

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


Mathematics for the Trades – A Guided Approach –Ninth Edition
with MyMathLab
ISBN  9780321937988

Prentice Hall Publishing

A scientific calculator is required.

Any additional information will be provided

## V.    EVALUATION PROCESS/GRADING SYSTEM:

 Assigned work                                             30%
Tests/Practical Tests and/or Quizzes          70%

**Some minor modifications to the above percentages may be necessary.**

The professor reserves the right to adjust the number of tests, practice tests, quizzes and assigned work based on unforeseen circumstances. The students will be given sufficient notice to any changes and the reasons thereof.

There will likely be four or more tests of equal value. If warranted, the professor may choose to also include surprise quizzes, class based work and/or practice tests to reinforce key concepts. **MyMathLab** assignments will be included, and will contribute toward your final mark in the course.

In order to pass the course, **students must achieve a passing average on tests and the assigned work.  Each and every test is mandatory** and an absence from a test without prior approval may result in a zero grade for that test.

If the professor chooses to have in class quizzes and / or class based work, absence may also result in zero grades for these activities.

## ATTENDANCE

It is your responsibility to attend all classes during the semester. Research indicates there is a high correlation between attendance and student success.

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.

**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 professor to schedule the writing of a make-up test.  Failure to do so will be considered as an unexcused absence.

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. | |

Trades Mathematics                                                                                    MTH106

## 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

The professor reserves the right to adjust the number of tests, the final exam, assignments and quizzes as warranted. Any modifications will be discussed in class.  Students with special needs and/ or circumstances are required to identify their special needs with the professor.

Attendance is mandatory and the quizzes, in class and assigned work will only be marked when completed in class.

It is the students' responsibility to notify the professor in advance of any absences and it will be at the professor's discretion to allow rewrites, retakes, modified assignments or quizzes where warranted.

Work is to be completed by the assigned dates and times. Failure to do so may result in zero grades for the assigned work.

Some of the assigned work may be provided and/or completed through the internet via MYMathLab, or MathXL or myMATHTest software or LMS.

Trades Mathematics                                                                MTH106

## VII.  COURSE OUTLINE ADDENDUM:

1.    Course Outline Amendments:
      The professor reserves the right to change the information contained in this course outline
      depending on the needs of the learner and the availability of resources.

2.    Retention of Course Outlines:
      It is the responsibility of the student to retain all course outlines for possible future use in
      acquiring advanced standing at other postsecondary institutions.

3.    Prior Learning Assessment:
      Students who wish to apply for advance credit transfer (advanced standing) should obtain an
      Application for Advance Credit from the program coordinator (or the course coordinator
      regarding a general education transfer request) or academic assistant.  Students will be
      required to provide an unofficial transcript and course outline related to the course in
      question.  Please refer to the Student Academic Calendar of Events for the deadline date by
      which application must be made for advance standing.

      Credit for prior learning will also be given upon successful completion of a challenge exam or
      portfolio.

      Substitute course information is available in the Registrar's office.

4.    Accessibility Services:
      If you are a student with a disability (e.g. physical limitations, visual impairments, hearing
      impairments, or learning disabilities), you are encouraged to discuss required
      accommodations with your professor and/or the Accessibility Services office.  Visit Room
      E1101 or call Extension 2703 so that support services can be arranged for you.

5.    Communication:
      The College considers *Desire2Learn (D2L)* as the primary channel of communication for
      each course.  Regularly checking this software platform is critical as it will keep you directly
      connected with faculty and current course information.  Success in this course may be
      directly related to your willingness to take advantage of this Learning Management System
      (LMS) communication tool.

      The professor reserves the right to use other tools and/or techniques that may be more
      applicable. These other tools/techniques for effective communication will be discussed,
      identified and presented throughout the delivery of course content.

6.   Plagiarism:
     Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct.*
     Students who engage in academic dishonesty will receive an automatic failure for that
     submission and/or such other penalty, up to and including expulsion from the
     course/program, as may be decided by the professor/dean.  In order to protect students from
     inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the
     author of the material, it is the policy of the department to employ a documentation format for
     referencing source material.

7.   Tuition Default:
     Students who have defaulted on the payment of tuition (tuition has not been paid in full,
     payments were not deferred or payment plan not honoured) as of the first week of November
     will be removed from placement and clinical activities due to liability issues. This may result
     in loss of mandatory hours or incomplete course work.  Sault College will not be responsible
     for incomplete hours or outcomes that are not achieved or any other academic requirement
     not met as of the result of tuition default. Students are encouraged to communicate with
     Financial Services with regard to the status of their tuition prior to this deadline to ensure that
     their financial status does not interfere with academic progress.

8.   Student Portal:
     The Sault College portal allows you to view all your student information in one place.
     mysaultcollege gives you personalized access to online resources seven days a week from
     your home or school computer.  Single log-in access allows you to see your personal and
     financial information, timetable, grades, records of achievement, unofficial transcript, and
     outstanding obligations, in addition to announcements, news, academic calendar of events,
     class cancellations, your learning management system (LMS), and much more.  Go to
     https://my.saultcollege.ca.

9.   Electronic Devices in the Classroom:
     Students who wish to use electronic devices in the classroom will seek permission of the
     faculty member before proceeding to record instruction.  With the exception of issues related
     to accommodations of disability, the decision to approve or refuse the request is the
     responsibility of the faculty member.  Recorded classroom instruction will be used only for
     personal use and will not be used for any other purpose.  Recorded classroom instruction
     will be destroyed at the end of the course.  To ensure this, the student is required to return
     all copies of recorded material to the faculty member by the last day of class in the semester.
     Where the use of an electronic device has been approved, the student agrees that materials
     recorded are for his/her use only, are not for distribution, and are the sole property of the
     College.