SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

SAULT COLLEGE

COURSE OUTLINE

COURSE TITLE: TRADE CALCULATIONS

CODE NO. : ASR105   **SEMESTER:** 1

PROGRAM: AIRCRAFT STRUCTURAL REPAIR

AUTHOR: Larry Canduro

DATE:	Sept. 2010	**PREVIOUS OUTLINE DATED:**	Sept. 2009

APPROVED: "B. Punch"

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                          Chair   **DATE**

TOTAL CREDITS: 2

PREREQUISITE(S): Ontario Secondary School Diploma

HOURS: (Total) 32

I.   COURSE DESCRIPTION:
This course studies the rules and procedures needed to obtain a complete understanding of modern technical mathematics as it applies to aircraft structural repair work. The participants will solve practical applied problems after studying and learning the fundamental concepts involved.

II.   LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course the student will demonstrate the ability to understand and solve the practical applied problems related to:

1.   Introduction to Arithmetic

      Potential Elements of the Performance:
      • listen to teacher presentation on the definitions of terms, sequence of
        operations and applying the rules and procedures to problem solving
      • complete assignment for discussion in class
      • participate in a hands-on demonstration on the use of hand-held scientific
        calculators

2.   Common Fractions

      Potential Elements of the Performance:
      • listen to teacher presentation on the following principles of common
        fractions: mixed numbers, proper and improper fractions, reducing a
        common fraction to its lowest terms, reducing an improper fraction,
        changing a whole or mixed number to an improper fraction, finding the
        lowest common denominator for two or more fractions
      • complete assignment #1 for discussion in class
      • listen to teacher presentation on the addition, subtraction, multiplication
        and division of fractions, cancellation and complex fractions
      • complete assignment #2 for discussion in class
      • participate in a class discussion on a review of arithmetic and common
        fractions

3. Decimal Fractions

    Potential Elements of the Performance:
    - listen to teacher presentation on the following principles of decimal fractions: reading numbers, changing a common fraction to a decimal fraction and vice versa, using a table of decimal equivalents, adding, subtracting, multiplying and dividing decimals and rounding off numbers
    - complete assignment for discussion in class

4. Ratio and Proportion

    Potential Elements of the Performance:
    - listen to teacher presentation on the principles of ratio and proportion
    - complete assignment #1 for discussion in class
    - listen to teacher presentation on the applications of density, specific gravity and the conversion of units
    - complete assignment #2 for discussion in class
    - participate in class discussion on a review of decimal fractions and ratio and proportion

5. Measurement

    Potential Elements of the Performance:
    - listen to teacher presentation on the various units of measurement and conversions between English and Metric systems, using conversion tables
    - practice using conversion tables as needed to aid in problem solving throughout ASR105

6. Basic Algebra

    Potential Elements of the Performance:
    - listen to teacher presentation on the addition, subtraction, multiplication and division of signed numbers and how to solve and check simple equations.
    - apply the algebra skills learned to problem solving throughout ASR105

7.   Geometry

Potential Elements of the Performance:
- observe teacher demonstration on how to construct the various geometric surfaces that are used for layout exercises related to aircraft structural repair work
- work individually on constructing the layout exercises
- listen to teacher presentation on perimeter, circumference, bend layout terms and bend allowance calculations
- complete assignments on perimeter, circumference and bend allowance exercises for discussion in class
- listen to teacher presentation on area and volume
- complete assignment for discussion in class

8.   Trigonometry

Potential Elements of the Performance:
- listen to teacher presentation on the introduction to trigonometry, the trigonometric functions and the applications to right triangles
- complete assignment for discussion in class

III.   TOPICS:

1.   Introduction to Arithmetic
2.   Common Fractions
3.   Decimal Fractions
4.   Ratio and Proportion
5.   Measurement
6.   Basic Algebra
7.   Geometry
8.   Trigonometry

IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:

A/C 65-15A   A&P Mechanics Airframe Handbook
A/C 65-9A   A&P Mechanics General Handbook
Standard Aviation Maintenance Handbook
Aircraft Sheet Metal
Scientific Calculator (Available in Sault College Bookstore)
Math Set (Available in Sault College Bookstore)

V.   EVALUATION PROCESS/GRADING SYSTEM:

Written Tests (3):
> Test #1 Fractions, Decimals, Ratio & Proportion and Measurement (20%)
> Test #2 Geometry – Bend Calculations (50%)
> Test #3 Trigonometry – Bend Calculations (30%)

Note: Students in the Aircraft Structural Repair Program require a minimum of seventy (70) percent in a course to obtain a passing grade. This equates to a "B" grade.

The following semester grades will be assigned to students in postsecondary courses:

Grade	Definition	Grade Point Equivalent
A+	90 - 100%	4.00
A	80 – 89%	4.00
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.
 It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers will not be granted admission to the room.

COURSE NOTE: **All assignments must be completed. Failure to complete assignments will result in removal of 10% from the test associated with the assignment.**

VII.   COURSE OUTLINE ADDENDUM:

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