

**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:** June **PREVIOUS OUTLINE DATED:** June  
2005 2004  
**APPROVED:** \_\_\_\_\_  
**DEAN** **DATE**  
**TOTAL CREDITS:** 2  
**PREREQUISITE(S):** Grade 12 General Math  
**HOURS: (Total)** 34

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*For additional information, please contact Colin Kirkwood, Dean*  
*School of Technology, Skilled Trades, Natural Resources & Business*  
*(705) 759-2554, Ext.2688*

**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:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
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:**Special Needs:

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

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.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. 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.

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.

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

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. PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

**VIII. DIRECT CREDIT TRANSFERS:**

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.