

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: TRADE CALCULATIONS

CODE NO.: ASR 105

SEMESTER: 1

PROGRAM: AIRCRAFT STRUCTURAL REPAIR

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DATE: MAY 1996

PREVIOUS OUTLINE DATED: MARCH 95

APPROVED.

DEAN

L.P. Cuzzeth

DATE

96-05-27

TRADE CALCULATIONS
COURSE NAME

ASR 105
CODE NO.

TOTAL CREDITS: 36 (3 CREDITS)

PREREQUISITE(S): GRADE 12 GENERAL MATH

I. PHILOSOPHY/GOALS: 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. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES):

Upon successful completion of this course the student will:

- 1) Develop the knowledge and ability to solve the practical applied problems related to the topics listed in section III of this outline.

III. TOPICS TO BE COVERED:

Approximate Time
Frames (Optional)

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

IV. LEARNING ACTIVITIES/REQUIRED RESOURCES

Topic/Unit - INTRODUCTION TO ARITHMETIC

Learning Activities: SECTION 1 UNITS 1 & 2

- 1.1 Listen to teacher presentation on the definitions of terms, sequence of operations and applying the rules and procedures to problem solving.
- 1.2 Complete assignment in Chapter 1 (exercise section) for discussion in class.
- 1.3 Participate in a hands-on demonstration on the use of hand held scientific calculators.

Resources:

Scientific Calculator (to be used as needed throughout ASR 105)
Blackboard
Math Textbook

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Topic/Unit - COMMON FRACTIONS

Learning Activities: SECTION 1 UNITS 3 TO 7

- 2.1 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.
- 2.2 Complete assignment 1 in Chapter 2 for discussion in class.
- 2.3 Listen to teacher presentation on the addition, subtraction, multiplication and division of fractions, cancellation and complex fractions.
- 2.4 Complete assignment 2 in Chapter 2 for discussion in class.
- 2.5 Participate in a class discussion on a review of arithmetic and common fractions.

Resources:

Math Textbook
Blackboard
Handout - Quiz #1

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Topic/Unit - DECIMAL FRACTIONS

Learning Activities: SECTION 1 UNITS 8 To 16

- 3.1 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 round off numbers.
- 3.2 Complete assignment in Chapter 3 for discussion in class.

Resources:

Overhead - Table of Decimal Equivalents
Blackboard

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Topic/Unit - RATIO AND PROPORTION

Learning Activities: SECTION 6 UNITS 49 To 52

- 4.1 Listen to teacher presentation on the principles of ratio and proportion.
- 4.2 Complete assignment 1 in Chapter 5 for discussion in class.
- 4.3 Listen to teacher presentation on the applications of density, specific gravity and the conversion of units.
- 4.4 Complete assignment 2 in Chapter 5 for discussion in class.
- 4.5 Participate in class discussion on a review of decimal fractions and ratio and proportion.

Resources:

Math textbook
Blackboard
Handout - Quiz #2

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Topic/Unit - MEASUREMENT

Learning Activities: SECTION 2 UNITS 21 TO 24

- 5.1 Listen to teacher presentation on the various units of measurement and conversions between English and Metric systems, using conversion tables.
- 5.2 Practice using conversion tables as needed to aid in problem solving throughout ASR 105.

Resources:

Overhead - (English/Metric) Conversion Table
Math Textbook

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Topic/Unit - BASIC ALGEBRA

Learning Activities: FORMULAS PAGES 257 TO 260

- 6.1 Listen to teacher presentation on the addition, subtraction, multiplication and division of signed numbers and how to solve and check simple equations.
- 6.2 Apply the algebra skills learned to problem solve throughout ASR 105.

Resources:

Blackboard

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Topic/Unit - GEOMETRY

Learning Activities: SECTION 4 UNIT 31 To 38

- 7.1 Observe teacher demonstration on how to construct the various geometric surfaces that are used for layout exercises related to aircraft structural repair work.
- 7.2 Work individually on constructing the layout exercises mentioned in 7.1.
- 7.3 Listen to teacher presentation on perimeter, circumference, bend layout terms and bend allowance calculations.
- 7.4 Complete assignments on perimeter, circumference and bend allowance exercises for discussion in class.
- 7.5 Listen to teacher presentation on area and volume.
- 7.6 Complete assignment in Chapters 22 & 24 for discussion in class.

Resources:

Overheads - Layout Exercises
Handout - Geometry Assignment 1
Math Set (Geometry Set)
Handout - Formula Sheet
Blackboard
Handout - Perimeter and Circumference
Handout - Bend Allowance Exercises
Math Textbook

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Topic/Unit - TRIGONOMETRY

Learning Activities: SECTION 11 UNIT 87 To 91

- 8.1 Listen to teacher presentation on the introduction to trigonometry, the trigonometric functions and the applications to right triangles.
- 8.2 Complete assignment in Chapters 27, 28 and 29 for discussion in class.

Resources:

Blackboard
Math Textbook

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V. EVALUATION METHODS: (INCLUDES ASSIGNMENTS, ATTENDANCE REQUIREMENTS, ETC.)

Written Tests (5) -- submitted by the instructor
Each test accounts for 20% of the final grade.

A+	94% - 100%
A	86% - 93%
B	78% - 85%
C	70% - 77%
I	Incomplete

VI. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the instructor. Credit for prior learning will be given upon successful completion of the following:

COLLEGE MATHEMATICS PLACEMENT TEST

VII. REQUIRED STUDENT RESOURCES

- 1) Math Textbook -- ~~Practical Mathematics (7th ed.)~~ FOR SHEET METAL FABRICATION
Palmer - ~~Wraehok~~ DELMAR
- 2) Scientific Calculator -- available in Sault College Bookstore for \$17.30
- 3) Math Set -- available in Sault College Bookstore or \$8.15

VIII. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY:

Book Section (TITLE, PUBLISHER, EDITION, DATE, LIBRARY CALL NUMBER IF APPLICABLE - SEE ATTACHED EXAMPLE)

- 1) Essentials of Mathematics - 5th edition
Publisher - Wiley
Library Call Number - QA 39.2.P473

IX. SPECIAL NOTES

Students with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.