

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY  
SAULT STE MARIE, ON



Sault College

COURSE OUTLINE

Course Title: GENERAL HAND TOOLS

Code No.: ASR1130

Semester: 1

Program: AIRCRAFT STRUCTURAL REPAIR

Author: STEVE LACHOWSKY

Date: June 2002 Previous Outline Date: June 2000

Approved: \_\_\_\_\_  
Dean Date

Total Credits: 2

Prerequisite(s):

Length of Course: 2 Hrs./Wk. Total Credit Hours: 36

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 COURSE NAME

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 COURSE NUMBER

**I. COURSE DESCRIPTION:**

Students will research basic hand tools used to perform aircraft structural repair and demonstrate the safe method of operations. In-depth presentations will be demonstrated in the techniques used to operate delicate and precision measuring tools. Students will demonstrate proper techniques in using these instruments.

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

(Generic Skills Learning Outcomes placement on the course outline will be determined and communicated at a later date.)

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

- 1) Demonstrate the proper method and safe operation of hand tools.

Potential Elements of the Performance:

- identify the various hand tools that are used in aircraft repairs and hand tools specifically used in structural repairs.
- discuss and demonstrate the proper method of operation of the hand tools.
- demonstrate safe operation of the hand tools
- discuss the importance of proper care and maintenance of hand tools
- identify and choose proper file size and type
- demonstrate proper file operation
- discuss and select proper hacksaw blade for the projects assigned

- 2) Demonstrate the proper method of operating precision measuring instruments.

Potential Elements of the Performance:

- identify various measuring instruments used in structural repairs such as micrometers, vernier calipers and various type of gauges
- demonstrate the proper methods used in the operation of various measuring instruments
- discuss the importance of re-calibration of measuring instruments
- discuss Transport Canada's requirements as they effect the usage of aircraft related measuring instruments
- demonstrate how these measuring instruments are associated with layout procedures

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## II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE (Continued)

- 3) Demonstrate using charts, the proper selection of taps, dies and drills to complete these operations in steel metals.

Potential Elements of the Performance:

- identify tap and die sizes
- demonstrate proper tap and dies selection as per project assignment
- discuss proper procedures in operation of taps and dies
- discuss proper maintenance of taps and dies
- demonstrate selection procedures using charts to determine tap sizes, and twist drill sizes
- discuss four types of taps
- discuss procedures used to remove taps

- 4) Complete twist drill operation study and discuss various drill sizes, cutting techniques, lubricants and personal safety requirements.

Potential Elements of the Performance:

- identify various types of twist drills such as standard and metric
- identify various types of drills used to operate twist drills
- discuss various parts of a twist drill and the purpose of each of these parts as they pertain to twist drill operations
- research and identify twist drill speeds and feeds
- discuss “step drilling” procedures
- discuss lubricants used during the drilling operations
- demonstrate personal safety and discuss equipment used to protect eyes

## III. TOPICS:

- 1) Hand Tools
- 2) Measuring Instruments
- 3) Taps, Dies and Twist Drill Operations

## IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

A/C 65-9A  
Teacher Handouts

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## V. EVALUATION PROCESS/GRADING SYSTEM

Written Test (1) accounts for 100% of Final Grade

GRADING:

A+ (94-100%)	B (78-85%)	R - Repeat
A (86- 93%)	C (70-77%)	

## VI. SPECIAL NOTES:

- Special Needs  
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities), you are encouraged to discuss required accommodations with the instructor and/or contact the Special Needs Office, Room E1204, Ext. 493, 717, 491 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 post-secondary institutions.
- Disclaimer for Meeting the Needs of the Learners
- Substitute Course Information is available at the Registrar's Office.
- Course Note: ALL assignments must be completed. Any assignments not complete will result in the removal of 10% from the final grade in ASR113.

## VII. PRIOR LEARNING ASSESSMENT

Students who wish to apply for advanced credit in the course should consult the instructor.