476

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: GENERAL HAND TOOLS

CODE NO.: ASR 113 SEMESTER: ONE

PROGRAM: AIRCRAFT STRUCTURAL REPAIR

AUTHOR: STEVE LACHOWSKY

DATE: JANUARY 1995 PREVIOUS OUTLINE DATED:

APPROVED: _____ 95-01-25
DEAN DATE

GENERAL HAND TOOLS — COURSE NAME

ASR 113 — CODE NO.

TOTAL CREDITS: 45 Hours (3 credits)

PREREQUISITE(S): _____

I. PHILOSOPHY/GOALS:

Students will research basic hand tools used to perform aircraft structural repairs 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. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES):

Upon successful completion of this course the student will:

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

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

3) Demonstrate the proper method of drill, taping and charts selection in drilling and taping steel and aluminum metals.

III. TOPICS TO BE COVERED:

Approximate Time Frames (Optional)

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

IV. LEARNING ACTIVITIES/REQUIRED RESOURCES

Topic/Unit - HAND TOOLS

Learning Activities:

1.1 Identify the various hand tools that are used in aircraft repairs and hand tools specifically used in structural repairs.

1.2 Discuss and demonstrate the proper method of operation of the hand tools.

1.3 Demonstrate safe operation of the hand tools.

1.4 Discuss the importance of proper care and maintenance of hand tools.

1.5 Identify and choose proper file size and type.

1.6 Demonstrate proper file operation.

1.7 Discuss and select proper hacksaw blade for the projects assigned.

Resources:

Teacher Handouts
Textbook AC65-9A (Chapter XII -- pages 529 to 542)

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Topic/Unit - MEASURING INSTRUMENTS

Learning Activities:

2.1 Identify various measuring instruments used in structural repairs such as micrometers, vernier calipers and various type of gauges.

2.2 Demonstrate the proper methods used in the operation of various measuring instruments.

2.3 Discuss the importance of proper storage and maintenance of measuring instruments.

2.4 Discuss the importance of re-calibration of measuring instruments.

2.5 Discuss Transport Canada's requirements as they effect the usage of aircraft related measuring instruments.

2.6 Demonstrate how these measuring instruments are associated with layout procedures.

Resources:

Teacher Handouts
Textbook AC65-9A (Chapter XII -- page 542)

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Topic/Unit - TAPS and DIES

Learning Activities:

3.1 Identify tap and die sizes.

3.2 Demonstrate proper tap and dies selection as per project assignment.

3.3 Discuss proper procedures in operation of taps and dies.

3.4 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.

3.5 Discuss procedures used to remove taps.

Resources:

Teacher Handouts
Textbook AC65-9A (Chapter XII - pages 542 to 547)

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Topic/Unit - TWIST DRILL OPERATIONS

Learning Activities:

4.1 Identify various types of twist drills such as standard and metric.

4.2 Identify various types of drills used to operate twist drills.

4.3 Discuss various parts of a twist drill and the purpose of each of these parts as they pertain to twist drill operations.

4.4 Research and identify twist drill speeds and feeds.

4.5 Discuss "step drilling" procedures.

4.6 Discuss lubricants used during the drilling operations.

4.7 Demonstrate personal safety and discuss equipment used to protect eyes.

Resources:

Teacher Handouts
Textbook AC65-9A (Chapter XII)

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

One written test worth 100% of final mark.

Grading will be as follows:

A+	--	94 to 100%
A	--	86 to 93%
B	--	78 to 85%
C	--	70 to 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:

VII. REQUIRED STUDENT RESOURCES

A & P General Handbook - A/C65-9A

VIII. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY:

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

Periodical Section (MAGAZINES, ARTICLES)

Audiovisual Section (FILMS, FILMSTRIPS, TRANSPARENCIES)

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.

X. **COURSE ANALYSIS SHEET** (see attached)