

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



COURSE OUTLINE

Course Title: GENERAL REPAIRS II

Code No.: ASR108 Semester: 2

Program: AIRCRAFT STRUCTURAL REPAIR

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Date: DEC. 1998 Previous Outline Date: DEC. 1995

Approved:

K. DeRosario

98-01-09

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Date

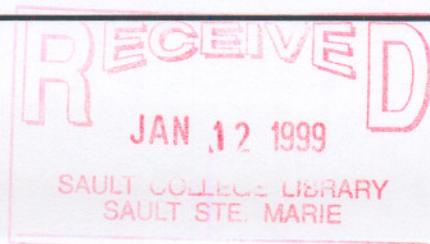
Total Credits: 20

Prerequisite(s):

Length of Course: 16 Hrs./Wk.

Total Credit Hours:

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& Technology, (705) 759-2554, Ext. 642.



COURSE NAME

COURSE NUMBER

I. COURSE DESCRIPTION:

Students will research using textbooks, structural repair manuals and teacher handouts And perform major structural repairs. Topics such as aircraft fabric covering, shot peening, aircraft corrosion control, aircraft bonded structures, and float repairs will be examined. This course utilizes specialized tools and large sheet metal fabricating machinery.

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) Describe and demonstrate using S.R.M.'s , how to complete major structural repairs. Other topics such as inspection panel fasteners, sodefying techniques and jigs will also be discussed.

Potential Elements of the Performance:

- perform various panel repairs and discuss the procedures you should follow to complete this repair.
- repair aircraft stringer repairs, as per S.R.M.
- complete the various bulkhead repairs assigned
- perform the various spar repairs.
- complete, using S.R.M., a leading edge and trailing edge repair on a wing or control surface
- decide the number of parts required to complete a repair by reading blueprints or aircraft structural repair manuals
- identify using repair schematics, the procedures used to repair various float damage
- identify the various items used in the construction of a float
- install various turn lock fasteners and identify the various parts of turn lock fasteners installations
- identify the coding system used to identify fastener diameter and length on Cam Lok and Dzeus fasteners
- identify various fasteners found on aircraft inspection panels
- install and remove various fasteners found on aircraft inspection panels

COURSE NAME

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

- 2) Identify basic fabric types, repair procedures and safety requirements associated with fabric covered aircraft fuselages at control surfaces.

Potential Elements of the Performance:

- identify the types of fabrics used to repair aircraft fabric covered structures
- discuss various terms used throughout the repair process
- state the purpose and procedures for various repairs
- describe various wing fabric repairs
- list the causes of fabric deterioration
- identify areas where fabric damage will most likely occur
- discuss dope application and problems associated with this method of repair
- discuss various stitching involved with fabric repairs
- identify the various safety equipment associated with these repairs

- 3) Identify aircraft corrosion types, corrosion formation and removal procedures.

Potential Elements of the Performance:

- identify various types of corrosion which damages aircraft structures
- remove and treat corrosion in aircraft structures as per assignments
- describe how to use equipment and chemicals associated with removing and treating corrosion
- state the causes of corrosion
- identify areas prone for corrosion start up

- 4) Discuss the bonded structure materials and processes used to repair honeycomb and fiberglass parts

Potential Elements of the Performance:

- identify a bonded structure and briefly describe why we use bonded structures in aircraft
- describe honeycomb construction and where you may find this material on an aircraft structure
- discuss fiberglass types and repairs
- state the purpose of using various chemicals in fiberglass repairs
- list the advantages of epoxy resin
- identify, using manuals, various repairs to fiberglass items
- repair various minor and major honeycomb damage, as per assignment
- identify the equipment to perform these repairs and the safety precautions one must follow

COURSE NAME

COURSE NUMBER**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE
(Continued)**

- 5) Describe various cable types, their construction, methods of swaging fittings and nico-press operations

Potential Elements of the Performance:

- identify most common types of cables used for aircraft systems
- Swage terminal ends onto cable using correct swaging dies and hand tools.
- nico-press aircraft cable, using thimble and copper sleeve, and hand tools
- identify the various equipment used to fabricate aircraft cable
- test cable after installation of terminal ends. Inspect for broken strands and slippage

- 6) Basic wooden aircraft repairs and processes will be discussed.

Potential elements of the Performance:

- identify the aircraft woods required for structural and component repairs
- discuss terminology associated with wood
- describe the requirements for selecting aircraft wood for the purpose of repairs
- discuss the advantages of using plywood Vs solid wood in aircraft repairs
- identify types of glues used for repairs and discuss gluing methods
- discuss moisture content in aircraft woods
- describe the surface conditions of gluing wooden structures and the importance of strong gluing joints
- identify gluing pressures required during wooden structure repairs and the importance of using Caul blocks and jigs
- discuss laminated wood construction and methods of bending wood in jigs
- describe basic spar splices, scarf joint repairs, and L/E and T/E repairs
- identify jig manufacturing of rib jigs
- discuss plywood repairs, including surface patches and splayed patch
- identify the acceptable methods of finishing repaired wood surfaces

- 7) Shot Peening techniques and processes will be studied and discussed.

Potential elements of the Performance:

- purpose of shot peening
- parts that are shot peened
- shot peening techniques
- shot peening equipment
- advantages and disadvantages of shot peening aircraft parts

COURSE NAME

COURSE NUMBER**III. TOPICS:**

- 1) General Repairs
- 2) Aircraft Fabric Coverings
- 3) Aircraft Corrosion Control & Shot Peening
- 4) Aircraft Bonded Structures
- 5) Aircraft Cable Construction
- 6) Aircraft Wooden Structures

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

A/C 65-15A Textbook
EA-SM Textbook
A/C 65-9A Textbook
Teacher handouts

V. EVALUATION PROCESS/GRADING SYSTEM

Written Tests (6), Practical Projects (20)

GRADING: A+ - 94 - 100%
 A - 86 - 93%
 B - 78 - 85%
 C - 70 - 77%
 R - REPEAT

EVALUATION/PRACTICAL PROJECTS/ASSIGNMENTS: See special notes

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.**
- **Students must pass both sections of the evaluation process to receive a passing grade. Failure of one or both sections will result in an 'R Grade'.**
∴ students must complete (20) practical projects – 1% will be deducted from your final mark for each project not completed. A 1% increase will occur for any project numbers higher than 20.
All assignments must be completed. Any assignments not completed will result in the removal of 10% from the theory evaluation section.

VII. PRIOR LEARNING ASSESSMENT

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