SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: **GENERAL REPAIRS II**

CODE NO. : **ASR128** **SEMESTER:** **2**

PROGRAM: **AIRCRAFT STRUCTURAL REPAIR**

AUTHOR:

DATE: **JAN 08** **PREVIOUS OUTLINE DATED:** **JAN 06**

APPROVED:

_____ _____

CHAIR **DATE**

TOTAL CREDITS: 18

PREREQUISITE(S):

HOURS/WEEK: 15 HRS/WK

COURSE DESCRIPTION:

I. 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 wooden 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:

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, safe tying techniques, hull and float repairs 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
   - identify and complete tubular structural repairs as per AC 43-13-1A
   - complete damage assessment and damage assessment reports
   - identify the classes of repairs for hull and float aircraft

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. Describe various cable types, their construction, methods of swazing fittings and nico-press operations

Potential Elements of the Performance:

- identify most common types of cables used for aircraft systems
- Swaze terminal ends onto cable using correct swazing 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

5. 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

6. 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 peeening equipment
- advantages and disadvantages of shot peening aircraft parts

III. TOPICS:

1. General Repairs
2. Aircraft Fabric Coverings
3. Aircraft Corrosion Control & Shot Peening
4. Aircraft Cable Construction
5. Aircraft Wooden Structures
6. Aircraft Tubular Structures, Turn Lock Fasteners & Safe Tying Procedures
7. Hull and Float Repairs

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:

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:

Grade	Definition	*Grade Point Equivalent*
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 professor and/or the Special Needs office. Visit Room E1101 or call Extension 493 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.

Communication:
The College considers ***WebCT/LMS*** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the ***Learning Management System*** communication tool.

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.

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.