1. **COURSE TITLE\*: Airframe Non-Metallic Structures**
2. **CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION\*: AVIT 1202**
3. **PREREQUISITE(S)\*: COREQUISITE(S)\*:**
4. **COURSE TIME/LOCATION/MODALITY: (*Course Syllabus – Individual Instructor Specific*)**
5. **CREDIT HOURS\*: 3 LECTURE HOURS\*: 2**

**LABORATORY HOURS\*: 1 (3.5 contact hrs) OBSERVATION HOURS\*:0**

1. **FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)***
2. **COURSE DESCRIPTION\*:**

This course will introduce the student to aircraft fabrics, woods, composites, acrylics. The students will perform hands-on wet-layup and vacuum bagging on composite structures used in aircraft. Students will inspect, test, fabricate, and repair fiberglass, bonded honeycomb, and fabric panels.

1. **LEARNING OUTCOMES\*:**

Students will gain knowledge of the following:

1. Wood structures, including inspection techniques, tools, and practices for wood structures
2. Effects of moisture/humidity on wood and fabric coverings
3. Types and general characteristics of wood used in aircraft structures
4. Permissible substitutes and other materials used in the construction and repair of wood structures
5. Acceptable and unacceptable wood defects
6. Wood repair techniques and practices
7. Factors used in determining the proper type covering material
8. Types of approved aircraft covering material
9. Seams commonly used with aircraft covering
10. Covering textile terms
11. Structure surface preparation
12. Covering methods commonly used
13. Covering means of attachment
14. Areas on aircraft covering most susceptible to deterioration
15. Aircraft covering preservation/restoration
16. Inspection of aircraft covering
17. Covering repair techniques and practices
18. Inspection/testing of composite structures
19. Types of composite structure defects
20. Composite structure fiber, core, and matrix materials
21. Composite materials storage practices and shelf life
22. Composite repair methods, techniques, fasteners, and practices
23. Care and maintenance of windows
24. Window temporary and permanent repairs
25. Inspecting restraints and upholstery
26. **ADOPTED TEXT(S)\*:**

FAA-H-8083-31A (Airframe Vol 1&2)

Aviation Maintenance Technician Handbook AC 43.13-1B

<https://www.faa.gov/sites/faa.gov/files/regulations_policies/handbooks_manuals/aviation/amt_airframe_hb_vol_1.pdf>

<https://www.faa.gov/handbooksmanuals/aviation/aviation-maintenance-technician-handbook-airframe-volume-2>

<https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_43.13-1B_w-chg1.pdf>

**9a: SUPPLEMENTAL TEXTS APPROVED BY FULL TIME DEPARTMENTAL FACULTY (INSTRUCTOR MUST NOTIFY THE BOOKSTORE BEFORE THE TEXTBOOK ORDERING DEADLINE DATE PRIOR TO ADOPTION) \*\*\*.**

1. **OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.)\*\***
2. **GRADING SCALE\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

A: 90 – 100

B: 80 – 89

C: 70 – 79

D: 60 – 69

F: 0 – 59

Grades of 69 and below will not meet the requirements of the FAA for Mechanic

Certificate.

1. **GRADING PROCEDURES OR ASSESSMENTS: (*Course Syllabus – Individual Instructor Specific)***

Test count – 40% of Final Grade

Quizzes count – 10% of Final Grade

Lab Grade counts – 50% of Final Grade

Class and lab attendance will be graded, two points will be deducted from the grade for each day missed. Quizzes cannot be made up. No test can be taken late without prior approval of the instructor.

1. **COURSE METHODOLOGY: *(Course Syllabus – Individual Instructor Specific)***

May included but not limited to lecture and problems solving, group and lab projects, in-class and home assignments, quizzes and tests. Lab project will be individual and group. Attendance to class and lab is required.

**14. COURSE OUTLINE: *(Course Syllabus – Individual Instructor Specific)***

***(Insert sample course outline with learning outcomes tied to assignments / topics.)***

**Below is an example of how you might fill-in the course outline of classwork, assignments, tests, et al…**

|  |  |  |
| --- | --- | --- |
| **WEEK** | **DESCRIPTION** | **LEARNING OUTCOMES #** |
| WEEK 1 | Aircraft wood, plywood, laminated wood, wood assessment, acceptable woods defects, non-acceptable wood defects, aircraft glues and adhesives. | 1, 5 |
| WEEK 2 | The wood bonding process, inspection of wood structures, wood structure repair, plywood skin repairs. | 2, 3, 4, 6 |
| WEEK 3 | Composite components used in aircraft, reinforcing fibers, composite fiber science. | 20 |
| WEEK 4 | Fabric styles, matrix systems, thermoplastic resins, thermosetting resins, thermosetting resins, gore materials. | 12, 13 |
| WEEK 5 | **Quiz 1** |  |
| WEEK 6 | Types of fiber-reinforced composites, working with resins and catalysts, composite safety considerations, compression molding, vacuum bagging, wet lay-up, electrical bonding. | 14, 15, 16, 17 |
| WEEK 7 | Composite repair, methods of curing repairs, vacuum-bagging repairs, potted repairs, laminate structure repair, sandwich structure repairs. | 18, 19, 22 |
| WEEK 8 | Types of transparent plastics, forming plastics, drilling plastics, cementing plastics, temporary plastic repairs, permanent plastic repairs, polishing and finishing plastic, windshield installation. | 23, 24 |
| WEEK 9 | **Test 1** |  |
| WEEK 10 | Aircraft covering, cellulose nitrate dope, cellulose acetate butyrate dope, fabric STC’s, fabric orientation. | 7, 8 |
| WEEK 11 | Organic fabric materials, inorganic fabric materials, reinforcing tape, surface tape, rib lacing cord, sewing threads, drainage grommets, inspection rings, finishing dope, fungicidal paste, aluminum paste, rejuvenator. | 9, 10, 11 |
| WEEK 12 | Determining fabric strength, Seyboth tester, Maule test instrument, fabric-covering removal, structural inspections on fabric aircraft, installing the fabric, attaching the fabric. | 21, 25 |
| WEEK 13 |  |  |
| WEEK 14 | Preparing the fabric for finishing, dope coats, synthetic fabric installation, glass cloth systems, inspection and repair of fabric covering | 9, 10, 11 |
| WEEK 15 |  |  |
| WEEK 16 | Final exam |  |

* + Aircraft wood, plywood, laminated wood, wood assessment, acceptable woods defects, non-acceptable wood defects, aircraft glues and adhesives.
  + The wood bonding process, inspection of wood structures, wood structure repair, plywood skin repairs.
  + Composite components used in aircraft, reinforcing fibers, composite fiber science.
  + Fabric styles, matrix systems, thermoplastic resins, thermosetting resins, thermosetting resins, gore materials.
  + Quiz 1
  + Types of fiber-reinforced composites, working with resins and catalysts, composite safety considerations, compression molding, vacuum bagging, wet lay-up, electrical bonding.
  + Composite repair, methods of curing repairs, vacuum-bagging repairs, potted repairs, laminate structure repair, sandwich structure repairs.
  + Types of transparent plastics, forming plastics, drilling plastics, cementing plastics, temporary plastic repairs, permanent plastic repairs, polishing and finishing plastic, windshield installation.
  + Test 1
  + Aircraft covering, cellulose nitrate dope, cellulose acetate butyrate dope, fabric STC’s, fabric orientation.
  + Organic fabric materials, inorganic fabric materials, reinforcing tape, surface tape, rib lacing cord, sewing threads, drainage grommets, inspection rings, finishing dope, fungicidal paste, aluminum paste, rejuvenator.
  + Determining fabric strength, Seyboth tester, Maule test instrument, fabric-covering removal, structural inspections on fabric aircraft, installing the fabric, attaching the fabric.
  + Preparing the fabric for finishing, dope coats, synthetic fabric installation, glass cloth systems, inspection and repair of fabric covering.
  + Final exam

**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:**

Class and lab attendance will be graded. Quizzes cannot be made up. No test can be taken late without prior approval of the instructor.

**16. FERPA:\***

Students need to understand that their work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**17. ACCOMMODATIONS: \***

Students requesting accommodations may contact Ryan Hall, Accessibility Coordinator at rhall21@sscc.edu or 937-393-3431, X 2604.

Students seeking a religious accommodation for absences permitted under Ohio’s Testing Your Faith Act must provide the instructor and the Academic Affairs office with written notice of the specific dates for which the student requires an accommodation and must do so no later than fourteen (14) days after the first day of instruction or fourteen (14) days before the dates of absence, whichever comes first. For more information about Religious Accommodations, contact Ryan Hall, Accessibility Coordinator at [rhall21@sscc.edu](mailto:rhall21@sscc.edu) or 937-393-3431 X 2604.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

**\*** Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

**\*\*** Any alteration or addition must be approved by the Curriculum Committee

**\*\*\*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.