

Aviation Technology- Maintenance  
Standard Course Outline

AVTA 1047 - SHEET METAL AND COMPOSITE STRUCTURES

Catalog Description: Basic structural repair techniques for sheet metal, fiberglass laminates, plastics, and honeycomb materials, as well as some interior refinishing.

Clock hours: 68 lecture, 130 shop

Prerequisite: AVTG 1001

Credit hours/ Contact hours/ Load hours: 7/198/33 six hour days

Target Audience & Transferability:

This course is designed for students seeking a Technical Certificate in Airframe or, when combined with General and Powerplant, an AAS in Aviation Maintenance Technology, or an AS in Aviation Maintenance Management. Individual AVT courses or Certificates may be transferable to other FAA Certified Aviation Maintenance Technician schools under Federal Regulations.

Student Outcomes/ Topics:

REFERENCES: AC 43-13.1B, AC 65-9A, AC 65-15A; AMT-A; JSAT.

FAA Standard: *FAA-S-8081-27* 2-4, Change 2 (9/24/03)

**Upon completion of the course, a student:**

1. Exhibits knowledge of at least two of the following—
    - a. inspection/testing of sheet metal structures.
    - b. types of sheet metal defects.
    - c. selection of sheet metal.
    - d. layout, and/or forming of sheet metal.
    - e. selection of rivets.
    - f. rivet layout.
    - g. rivet installation.
    - h. inspection/testing of composite structures.
    - i. types of composite structure defects.
    - j. composite structure fiber, core, and/or matrix materials.
    - k. composite materials storage practices and shelf life.
    - l. composite structure repair methods, techniques, and practices.
    - m. window inspection/types of defects.
    - n. window material storage and handling.
    - o. window installation procedures.
    - p. care and maintenance of windows.
    - q. window temporary and/or permanent repairs.
    - r. maintenance safety practices/precautions for sheet metal, and/or composite materials/structures, and/or windows.
  
  2. \*Demonstrates the ability to:
    - a. Install and remove at least two each, of two or more types of rivets. (Level 3)
- \*Core competency element.

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3. Demonstrates the ability to perform at least one of the following—
- a. lay out and form sheet metal to given dimensions; include at least one bend. (Level 3)
  - b. determine a rivet lay out pattern. (Level 2)
  - c. visually inspect an unpainted composite surface. (Level 3)
  - d. inspect a composite structure using a non-destructive testing method (in addition to visual). (Level 3)
  - e. select materials and clean a transparent surface. (Level 3)
  - f. inspect a window or windscreen. (Level 3)
  - g. remove one or more minor scratches from a transparent surface. (Level 3)
  - h. determine hole size to use in a sheet metal repair. (Level 2)
  - i. inspect a sheet metal assembly or repair for airworthiness. (Level 3)
  - j. drill and countersink and/or dimple sheet metal. (Level 3)
  - k. identify the fiber-reinforcing materials in at least three laminated composite structure samples. (Level 2)
  - l. locate data for composite structure damage assessment. (Level 1)

Required Text(s):

Airframe Structures Textbook (ASA)	ISBN # 1-56027-339-9
Airframe Systems Textbook (ASA)	ISBN # 1-56027-340-2
Airframe Test Study Guide (ASA)	ISBN # 1-56027-571-5
FAR Handbook for AMT (ASA)	ISBN # 1-56027-563-4
AC43.13-1B Acceptable Methods, Practices, & Techniques (ASA)	ISBN # 1-56027-488-3

Optional Text(s):

Technician Airframe Textbook (Jeppesen)	ISBN # 0-89100-395-9
Technician Airframe Workbook (Jeppesen)	ISBN # 0-89100-402-5
AC65-15A Aircraft Mechanics Handbook Airframe (FAA)	ISBN # 1-56027-023-3

Supporting Reference(s)

O&P Study Guide (ASA)	ISBN # 1-56027-406-9
Maintenance Handbook (ASA)	ISBN # 1-56027-518-9
Dictionary of Aeronautical Terms (ASA)	ISBN # 1-56027-587-2

The workbooks and test study guides may be used to aid the instructor and students to reinforce the textbook information. Other Textbooks may be used depending upon availability.

Required Methods of Instruction:

Classes are in a full time day or night format, requiring maximum attendance. Attendance is taken every hour. Missed time must be made up outside of regular scheduled class time before moving to the next subject.

Required Forms of Assessment:

Periodic exams will be performed by FAA approved instructors as required to insure progress. Students must pass this course with a 70% or better to qualify for an FAA approved Certificate of Completion in the airframe Section.