Aviation Technology- Maintenance
Standard Course Outline

AVTG 1083 - MATERIALS AND PROCESSES

Catalog Description:The following topics are covered: hand tools, hardware, heat-treating, magnetic particle inspection, dye penetrant inspection, chemical etching, visual inspection, and precision measurement. Student's use micrometers, calipers and hand tools, and perform basic heat-treating and non-destructive inspections. Clock Hours: 38 lecture, 18 shop

Prerequisite: AVTG 1001

Credit hours/ Contact hours/ Load hours: 3/84/6 hour per day for 14 days

Target Audience & Transferability:

This course is designed for students seeking a Certificate of Proficiency, Technical Certificates in Airframe 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/ Course Topics:

REFERENCES: ABS; AMR; AMT-G; JSAT; JSGT.
FAA Standard: *FAA-S-8081-26* 1-5, Changes 2 (9/24/03) & 3 (6/21/04)

By the end of the course, students will:

1. Exhibit knowledge of at least two of the following—
    a. any of the metals commonly used in aircraft and their general application.
    b. composites and other nonmetallic components and their general application.
    c. heat-treated parts precautions, using DD or "icebox" rivets.
    d. typical wood materials and fabric coverings.
    e. visible characteristics of acceptable and/or unacceptable welds.
    f. precision measurement and precision measurement tools.
    g. using inspection techniques/methods, including any of the following: visual, metallic ring test, dye/fluorescent penetrant, magnetic particle, and/or eddy current.
    h. identification, selection, installation, and/or use of aircraft hardware.
    i. safetying of components and/or hardware.
    j. finding information about material types for specific application(s).

2. *Demonstrate the ability to:
    a. Torque to specification(s), and safety-wire aircraft component(s)/hardware. (Level 3)

    *Core competency element.

3. Demonstrate the ability to perform at least one of the following—
    a. select and install standard aircraft hardware, to include one or more self-locking nuts. (Level 3)
    b. select, install, and secure a clevis bolt and associated hardware. (Level 3)
    c. select and install one or more appropriate screws/bolts, nuts, cotter pins, and washers. (Level 3)
    d. inspect hardware for defects, proper installation. (Level 3)
    e. safety a turnbuckle. (Level 3)

f. perform a dye or fluorescent penetrant inspection. (Level 3)
g. find a (not visible) defect using eddy current or ultrasonic inspection equipment. (Level 2)
h. perform, read, and record a precision measurement using a dial indicator, or micrometer, or vernier caliper. (Level 2)
i. visually inspect welds and determine acceptability. (Level 3)
a. identify rivets by physical characteristics. (Level 2)

Required Text(s):

General Textbook (ASA)	ISBN # 1-56027-550-3
General Test Study Guide (ASA)	ISBN # 1-56027-570-7
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 General Textbook (Jeppesen)	ISBN # 0-88487-203-3
Technician General Workbook (Jeppesen)	ISBN # 0-88487-212-2
AC65-9A Aircraft Mechanics Handbook General (FAA)	ISBN # 1-56027-064-0

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 issued depending upon availability.

Required Methods of Instruction:

Classes are taught off-campus 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 General Section.