COURSE OUTLINE

DEPARTMENT: Aviation Maintenance Technology

CURRICULUM: Airframe Maintenance Technology

COURSE TITLE: Airframe Structure and Repair

COURSE NUMBER: AMT 113

TYPE OF COURSE: Occupational Preparatory

COURSE LENGTH: 1 quarter

CREDITS: 17 credits

CLASS SIZE: 25 maximum

COURSE DESCRIPTION: In AMT 113 students will gain knowledge and/or experience working with five types of aircraft structure materials: wood, fabric, composite/fiberglass, plastic and metal. Student projects in each of these areas, in combination with classroom lectures, will provide realistic exposure to approved airframe structural repair practices.

Assigned project areas will include the inspection and repair of various aircraft structure materials. Installing common fasteners in composite and metal structures. Forming, heat treating and fabricating metal structures and an introduction to brazing, gas and arc welding of steel, magnesium and titanium.

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Course Outline

COURSE OBJECTIVES: Upon completion of all lecture sessions and lab assignments, the students learn and are able to:

1. Identify and describe the various materials used in aircraft structures.
2. Perform inspections, NDT, and repair operations on aircraft structures.
3. Determine the proper type of finish and condition of the finish on aircraft structures.
4. For a given structural material, select and remove and replace special fasteners
5. Perform inspection, servicing, and repair operations on transparent enclosures.
6. Fabricate an aircraft component using techniques for sheet metal construction.
7. Identify and perform soldering, brazing, and welding construction operations on various metal alloys.

PREREQUISITES: Successful completion of AMT 111 and 112 or by permission of Unit Administrator and instructor.

REQUIRED TEXTS: Required texts (see booklist in student information packet)

ADDITIONAL REFERENCES: Texts suggested by instructor.

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Course Outline

COURSE SUBJECTS:

I. Wood Structures
II. Fabric Covering
III. Aircraft Finishes
IV. Composite Structures
V. Plastic Structures
VI. Welding
VII. Sheet Metal

Lecture time for the program **will be** as much **as 1/2** but not **less** than **1/4** of the total hours. Laboratory/shop time **will be** as much **as 3/4** but not **less** than **1/2** of the total hours. Total contact time available is 265 hours.

AMT 113
Course Outline

I. WOOD

- A. Types
- B. Evaluation of use
- C. Preparation
- D. Gluing
- E. Spar repair
- F. Rib repair
- G. Plywood
- H. Inspection
- I. Protection

II. FABRIC

- A. Covering methods
- B. Organic fabrics
- C. Inorganic fabrics
- D. Approval for use
- E. Supplemental Type Certificates
- F. FAA field approval
- G. Structure preparation
- H. Fabric testing
- I. Coatings
- J. Attachment technique
- K. Patch repair
- L. Inspection

III. AIRCRAFT FINISHES

- A. Metal finishing
- B. Paint removal
- C. Paint preparation
- D. Primers
- E. Finishing systems
- F. Fabric finishing
- G. Organic fabric finishes
- H. Inorganic finishes
- I. Finish problems
- J. Paint and dope application
- K. Finishing equipment
- L. Safety equipment
- M. Inspection

IV. PLASTIC STRUCTURES

A. Storing and handling
B. Cutting
C. Drilling
D. Forming
E. Cementing methods
F. Cleaning
G. Installation methods
H. Inspection and Repair

V. COMPOSITE STRUCTURES

A. Fiberglass
B. Kevlar
C. Graphite
D. Fabric weaves
E. Resins
F. Foam
G. Honeycomb
H. Manufacturing methods
I. Inspection and Repair
J. Safety

VI. WELDING

A. Magnesium
B. Titanium
C. Aluminum
D. Stainless steel
E. Tubular structure
F. Solder and braze
G. Gas weld
H. Arc weld
I. Inspection
J. Safety

VII. SHEET-METAL

A. Metal types
B. Aircraft construction
C. Fasteners
D. Tools
E. Layout and forming
F. Sheet-metal joints
G. Repair and inspection