

## **AE8009 AIRFRAME MAINTENANCE AND REPAIR**

### DETAILED SYLLABUS

#### **OBJECTIVE:**

- To make the students to understand the Airframe components and the tools used to maintain the components. Defect investigation, methods to carry out investigation and the detailed maintenance and practice procedures.

#### **UNIT I MAINTENANCE OF AIRCRAFT STRUCTURAL COMPONENTS**

Equipments used in welding shop and their maintenance - Ensuring quality welds - Welding jigs and fixtures - Soldering and brazing – laser welding. Sheet metal repair and maintenance: Selection of materials; Repair schemes; Fabrication of replacement patches; Tools - power/hand; Repair techniques; Peening - Close tolerance fasteners; Sealing compounds; forming/shaping; Calculation of weight of completed repair; Effect of weight - change on surrounding structure. Sheet metal inspection - N.D.T. Testing. Riveted repair design - Damage investigation - Reverse engineering.

#### **UNIT II PLASTICS AND COMPOSITES IN AIRCRAFT**

Review of types of plastics used in airplanes - Maintenance and repair of plastic components - Repair of cracks and holes - various repairs schemes - Scopes. Cleaning of fibre reinforced plastic (FRP) materials prior to repair; Break test - Repair Schemes; FRP/honeycomb sandwich materials; laminated FRP structural members and skin panels; Tools/equipment; Vacuum-bag process. Special precautions – Autoclaves

#### **UNIT III AIRCRAFT JACKING, ASSEMBLY AND RIGGING**

Airplane jacking and weighing and C.G. Location. Balancing of control surfaces - Inspection maintenance. Helicopter flight controls. Tracking and balancing of main rotor.

#### **UNIT IV REVIEW OF HYDRAULIC AND PNEUMATIC SYSTEM**

Trouble shooting and maintenance practices - Service and inspection - Inspection and maintenance of landing gear systems. - Inspection and maintenance of air-conditioning and pressurization system, water and waste system. Installation and maintenance of Instruments - handling - Testing - Inspection. Inspection and maintenance of auxiliary systems - Rain removal system - Position and warning system - Auxiliary Power Units (APUs).

#### **UNIT V SAFETY PRACTICES**

Hazardous materials storage and handling, Aircraft furnishing practices - Equipments. Trouble shooting. Theory and practices.

#### **TEXT BOOK:**

1. Kroes, Watkins, Delp, "Aircraft Maintenance and Repair", McGraw Hill, New York, 1992.

#### **REFERENCES:**

1. Brimm D.J. Bogges H.E., "Aircraft Maintenance", Pitman Publishing corp., New York, 1940.
2. Delp. Bent and Mckinely "Aircraft Maintenance Repair", McGraw Hill, New York, 1987.