

COURSE CODE	COURSE TITLE	L	T	P	C
1152AE101	AERO ENGINE MAINTENANCE AND STRUCTURAL REPAIR	3	0	0	3

**Course Category:**

Program Elective

**a. Preamble :**

This course deals with the basic concepts in the inspection of Airframe and Aero Engine

**b. Prerequisite Courses:**

- Aircraft General Engineering and System Maintenance

**c. Course Educational Objectives :**

Students undergoing this Course are expected

- To learn the maintenance aspect and rectification of snags in Airframe and Aero Engine.
- To impart knowledge on fundamentals of Non Destructive Testing.

**d. Course Outcomes :**

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Illustrate the usage of Inspection and Maintenance Tools	K2
CO2	Explain various Defects in Airframe	K2
CO3	Explain the repairing procedures of Airframe defects	K3
CO4	Describe about the inspection of Engine components	K3
CO5	Illustrate Overhauling procedure of Aero Engine	K2

**e. Correlation of COs with POs :**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H	H			H		H					H
CO2	H	H			H		H	H				H
CO3	H	H	H		H		H		H			H
CO4	H	H			H		H	H				H
CO5	H	H	H		H		H					H

H- High; M-Medium; L-Low

**f. Course Content :**

**Unit – I Introduction to Inspection & Maintenance Tools 6**

Inspection – Types of Inspections – Dye Penetrant Inspection, Eddy Current Inspection, Ultrasonic Inspection, Magnetic Particle Inspection, X-Ray – Equipments used in Welding Shop – Forming Tools - Riveting Tools.

**Unit – II Aircraft Structural Inspections 6**

Inspection of Damage – Types of Damages and Defects – Classification of Damage – Inspection Openings.

**Unit – III Airframe Repairs 6**

Forming Process - Installation of Rivets – Riveting Procedure – Welding – Soldering and Brazing – Repair of Composite Components.

**Unit – IV Engine Component Inspections 6**

Inspection of engine components – Daily and routine checks – Compression testing of cylinders in piston engine – Special inspection procedures: Foreign Object Damage – Blade damage – etc. Maintenance of gas turbine engines.

**Unit – V Overhaul of Engines 6**

Symptoms of failure - Engine Overhaul procedures – Inspections and cleaning of components – Repairs schedules for overhaul – Engine Testing - Trouble Shooting – Condition monitoring of the engine on ground and at altitude – Engine Health Monitoring and corrective methods.

**Total – 45 Periods**

**Text Books**

1. “Aviation Maintenance Technician Handbook – Airframe, Volume – I”, Federal Aviation Administration.
2. “Aviation Maintenance Technician Handbook – Powerplant, Volume – II”, Federal Aviation Administration.

**Reference**

1. Kroes & Wild, “Aircraft Power Plants”, 7th Edition – Mcgraw Hill, New York, 1994.
2. Kroes, Watkins, Delp, “Aircraft Maintenance And Repair”, Mcgraw-Hill, New York, 1992