

<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>1151AE324</b>	<b>Aero Engine Maintenance and Structures Repair Laboratory</b>	0	0	2	1

**Course Category:**

Programmed core

a. **Preamble:**

This course engages the students towards the inspection and repair works in piston and jet engines using modern methods like NDT, preparation of manuals. The course introduces the fundamental skills on engine stripping and assembly. This also explains about the advanced knowledge on aircraft structural components and its repair techniques. It gives Hands on experience with experiments of the on wood gluing, welding, riveting, sheet metal forming and also do repair on composites, sandwich panels etc.

b. **Prerequisites:**

- Aircraft Structural Mechanics

c. **Links to other courses:**

- Nil

d. **Course educational objectives:**

Students undergoing this course are expected:

- To experimentally study the repair techniques on Aircraft structural and engine components.
- To experimentally know the various repair techniques like welding, gluing, etc.,
- To experimentally study the control cable inspection and sheet metal forming.
- To experimentally study the NDT and other inspection techniques.
- To prepare the troubleshoot manuals.

e. **Course outcomes:**

On successful completion of this course students will be able to

<b>CO Nos.</b>	<b>Course Outcomes</b>	<b>Level of learning domain (Based on revised Bloom's)</b>
C01	Identify the parts of the engine and airframe	K3,S3
C02	Demonstrate the NDT and fuel pipe line repair works.	K4,S3
C03	Demonstrate the Welding techniques	K4,S3
C04	Understand troubleshoot and prepare the manuals for engine maintenance.	K4,S3
C05	Demonstrate panel patch works.	K4,S3

**(S1-Factual, S2-Conceptual, S3-Procedural, S4-Metacognitive)**

**f. CORRELATION OF COS WITH PROGRAMME OUTCOMES:**

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

H- High; M-Medium; L-Low

**g. List of experiments:**

1. Welded patch repair by TIG, MIG, PLASMA ARC.
2. Riveted patch repairs.
3. Preparation and repair of Sandwich panels.
4. Sheet metal forming.
5. Control cable inspection and repair.
6. Stripping and Reassembly of a piston engine and Jet engine
7. Engine (Piston Engine) - cleaning, visual inspection, NDT checks.
8. Piston Engine Components - dimensional checks.
9. Engine (Jet Engine) - cleaning, visual inspection, NDT checks.
10. Fuel lines inspection and repair.
11. Engine starting procedures and Troubleshooting - Jet and Piston Engine.

**Total Periods: 30**