SEMESTER 5

AIRFRAME MAINTENANCE AND REPAIR

Course Code	**PEAOT527**	**CIE Marks**	40
Teaching Hours/Week (L: T:P: R)	3:0:0:0	**ESE Marks**	60
Credits	3	**Exam Hours**	2 Hrs. 30 Min.
Prerequisites (if any)	NIL	**Course Type**	Theory

Course Objectives:

1. To understand the inspection and maintenance practices of airframe and aircraft systems, aircraft safety practices.

SYLLABUS

Module No.	Syllabus Description	Contact Hours
1	**Aircraft Structural Component Maintenance** Welding – Equipment used in welding shops and their maintenance, ensuring quality welds, welding jigs and fixtures, Soldering and brazing. Sheet metal inspection – Selection of materials, Repair schemes, Fabrication of replacement patches, Non- Destructive Inspection, Riveted repair design, Damage investigation – Reverse technology.	9
2	**Plastics and Composites in Aircraft** Plastics – Types of plastics used in aircraft, Maintenance and repair of plastic components - Repair of cracks, holes etc., various repairs schemes. Composites –Maintenance and repair of composite components, Vacuum bag process. Autoclave – Operation, Safety equipment, Special precautions.	9
3	**Auxiliary systems** – Inspection and maintenance of Fire protection system, Ice protection system, Rain removal system, Position & warning system and Auxiliary Power Unit. **Aircraft Systems** - Inspection and maintenance of Hydraulic system, Pneumatic power system, Air-conditioning system, Pressurization system, Landing gear system, Aircraft brake system.	10
4	**Aircraft Safety Procedures** Aircraft Instruments – Installation, Maintenance, Handling, Testing and	

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	Inspection. Hazardous materials – types, storage and handling, Aircraft furnishing practices - Equipment. Troubleshooting – with and without chart, Format and Intermittent discrepancies.	**8**

Course Assessment Method
(CIE: 40 marks, ESE: 60 marks)

Continuous Internal Evaluation Marks (CIE):

Attendance	Assignment/ Microproject	Internal Examination-1 (Written)	Internal Examination- 2 (Written)	Total
5	**15**	**10**	**10**	**40**

End Semester Examination Marks (ESE)

In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions

Part A	Part B	Total
• 2 Questions from each module. • Total of 8 Questions, each carrying 3 marks (8x3 =24marks)	• Each question carries 9 marks. • Two questions will be given from each module, out of which 1 question should be answered. • Each question can have a maximum of 3 sub divisions. (4x9 = 36 marks)	**60**

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Course Outcomes (COs)

At the end of the course students should be able to:

Course Outcome		Bloom's Knowledge Level (KL)
CO1	Understanding the maintenance practices of aircraft structural components.	**K2**
CO2	Understand the maintenance practices of plastics and composite materials	**K2**
CO3	Understand the maintenance practices of aircraft systems and auxiliary systems	**K2**
CO4	Understand the aircraft safety procedures.	**K2**

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

CO-PO Mapping Table (Mapping of Course Outcomes to Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	-	-	-	-	-	-	-	-	-	-	1
CO2	2	-	-	-	-	-	-	-	-	-	-	1
CO3	2	-	-	-	-	-	-	-	-	-	-	1
CO4	2	-	-	-	-	1	1	2	-	-	-	1

Note: *1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation*

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Text Books

Sl. No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Aircraft Maintenance and Repair	Michael J. Kroes, Ronald Sterkenburg	McGraw Hill, New York	7th edition, 2013
2	Aviation Maintenance Technician Handbook-Airframe	Federal Aviation Administration	The English Book Store, New Delhi.	

Reference Books

Sl. No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Aircraft Maintenance	Brimm D J Bogges H E	Pitman Publishing Corp,New York	
2	Aircraft Maintenance Repair	Delp, Bent and Mckinely	McGraw Hill, New York.	

Video Links (NPTEL, SWAYAM…)	
Module No.	**Link ID**
1	https://nptel.ac.in/courses/101104075
2	https://nptel.ac.in/courses/101104075
3	https://nptel.ac.in/courses/101104075
4	https://nptel.ac.in/courses/101104075

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