



AMITY UNIVERSITY

— UTTAR PRADESH —

Course Title: AIRCRAFT MAINTENANCE

Credit Units: 02

Course Code: AERO301

Course Level: UG

L	T	P/S	SW/ FW	TOTAL CREDIT UNITS
2	-	-	-	2

Course Objectives

This course is designed to provide knowledge to the students about all types of preventive maintenance: repairs, overhauls, and calibration, rigging and testing of aircraft and its instruments and components/systems etc. This course also provides the knowledge of layout of aircraft structure, corrosion of aircraft components and its prevention and use of FRP components and maintenance requirements associated with it.

Pre-requisites: Elements of Aerospace Engineering

Course Contents/Syllabus:

	Weightage (%)
Module I : Introduction	15
Descriptors/Topics : Requirement of maintenance of aircraft, its components, systems, subsystems. Types of maintenance scheduling, Mandatory schedules, Inspection of aircraft and components. Types of Inspections, Repair, Modifications, and Reconditioning. Tools used. Role of airworthiness and flight-testing Issue of C of A.	
Module II : Testing of Aircraft Materials and Components	20
Descriptors/Topics : Testing techniques for Tension, Hardness, Bending, Impact, Crushing, Torsion, Fatigue, Hydrostatic tests. NDT Techniques: X-ray, Gamma Ray, Ultra-sonic; Magna-flux. Prediction of crack propagation, Preventive design.	
Module III : Layout of Aircraft Structure	20

Descriptors/Topics : Principle and important sub-groups, Aircraft Station numbering sub-assemblies in airframe, landing gear, Power plant and its attachment, Rotocraft Structure.	
Module IV : Corrosion and its Prevention	15
Descriptors/Topics : Corrosion of dissimilar metals, protection, Cleaning, Plating anodic, Oxidation, Paints. Problems of corrosion to aircraft in the vicinity of sea, Protective/Preventive measures.	
Module V : Fabrication and Repair of FRP Components	20
Descriptors/Topics : Development of metal bonding and composite materials, Bonding Structures, Composites : Characteristics, types, Fabrication and repair.	
Module VI : Aircraft Assembly and Rigging	10
Descriptors/Topics : Aircraft Assembly, Rigging, Alignment of fixed surfaces and flight controls and systems in details, balancing, Inspection and Maintenance. Flight control system of Helicopter.	

Student Learning Outcomes:

- Describe preventive, scheduled & un-scheduled maintenance procedures on the aircraft.
- Apply various test techniques to declare airworthiness of aircraft components and identify the properties of aircraft material.
- Assemble and prepare the aircraft for Ground run and flight.
- Define and use theory of corrosion and its prevention in case of aircraft and its components.
- Explain non-destruction testing procedure for aircraft parts.

Pedagogy for Course Delivery: Session Plan / course-material uploading, Class-room teaching associated with assignments, quiz, viva-voce and evaluation.

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	Total
100	NA	100

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment - 30					End Term Examination
Components (Drop down)	A	CT	S/V/Q	HA	70
Weightage (%)	5	10	8	7	70

Text & References:

- Kroes et.al, "Aircraft Maintenance and Repair", GLENCOE, 1993.
- G.F. Titterton, "Aircraft Materials and Processes", Himalayan Books, New Delhi-1990.
- Lalit Gupta, "Advanced Composite Materials", Himalayan Books, New Delhi-1998.

Any other Study Material:

-
-