



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3170111

Semester –VII

Subject Name: Aircraft General Engineering and Maintenance Practices

Type of course: Professional Elective course

Prerequisite: Basic course on Workshop, Aircraft Maintenance & Airport Management.

Rationale: This course provides a basic maintenance procedure to service systems and ground handling of any aircraft. It also gives the brief knowledge of certificate, Data Sheets and ATA specifications.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs
1	Aircraft Ground Handling and Support Equipment Mooring, jacking, leveling and towing operations – Preparation – Equipment - precautions – Engine starting procedures – Piston engine and Jet engine – Engine fire extinguishing – Ground power units.	10
2	Servicing of Various Sub Systems Air conditioning and pressurization System Maintenance –Servicing of Oxygen System and oil systems –Ground units and their maintenance.	08
3	Maintenance of Safety Shop safety – Environmental cleanliness – Precautions.	05
4	Inspection Process –Purpose –Types –Inspection intervals –Techniques –Checklist –Special inspection –Publications, bulletins, various manuals –FAR Air worthiness directives –Type certificate Data Sheets –ATA specifications.	10
5	Aircraft Hardware, Materials, Systems Processes Hand tools –Precision instruments –Special tools and equipment in an airplane maintenance shop –Identification terminology –Specification and correct use of various aircraft hardware (i.e. nuts, bolts, rivets, screws etc.) –American and British systems of specifications – Threads, gears, bearings, etc. –Drills, tapes & reamers. –Identification of all types of fluid line fittings. Materials, metallic and non-metallic -Plumbing Connectors -Cables –Swaging procedures, tests, Advantages of swaging over splicing.	12



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Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
30%	40%	20%	10%	0	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. "Aviation Maintenance Technician Hand Book –General" -Federal Aviation Administration.
2. Kroes Watkins Delp, "Aircraft Maintenance and Repair" –McGraw-Hill, New York 1993
3. A & P Mechanics, "Aircraft Hand Book" – F. A. A. Himalayan Book House, New Delhi, 1996

Course Outcomes:

Upon completion of this course students should be able:

Sr. No.	CO statement	Marks % weightage
CO1	To explain ground handling techniques of aircraft	20%
CO2	To illustrate maintenance procedure and service of various subsystems.	30%
CO3	To Prepare safety measures and take precautions in workshop.	20%
CO4	To Manage inspection documents, data sheets and have knowledge in FAR, airworthiness.	10%
CO5	To Explain Hand Tools and specifications of aircraft hardwares	20%

List of Experiments:

1. To study Hazardous Materials and Safety Practices.
2. To study Aircraft Fabric Covering.
3. To study Aircraft Assembly and Rigging.
4. To Study About Aircraft Painting and Marking.
5. To understand standard inspection techniques and procedures.
6. To understand Aircraft engine overhauling procedure.
7. To study Aircraft Rules and Regulations.

List of Open Source Software/learning website:

<https://nptel.ac.in/>