

# GUJARAT TECHNOLOGICAL UNIVERSITY

## B. E. SEMESTER: V

### AERONAUTICAL ENGINEERING

Subject Name: **Operation and Maintenance of Aircraft**

Subject Code: **150105**

Teaching Scheme				Evaluation Scheme		
Theory	Tutorial	Practical	Total	University Exam (Theory) (E)	Mid Sem Exam (Theory) (M)	Internal Assessment (I)
3	1	0	4	70	30	50

Sr. No.	Course Content
1.	<b>Aircraft rules &amp; regulations :</b> Introduction to aircraft rules and regulations.
2.	<b>Aircraft General Engineering and Maintenance Practices:</b> Hazardous Materials and Safety Practices, Environmental systems, Rigging, Typical aircraft fuel systems, Aircraft tubing repair, Special welding repair, Plastic materials, Fire position and warning system, Welding equipment and techniques, Welded aircraft structures and repair, Sheet-Metal construction, Fundamentals of plastic materials, Fundamental calculations in riveting for structures, Deicing system.
3.	<b>Airframe:</b> Principal aircraft structures, Fuselages, Wings, Tail and control surfaces, Landing gear, Registration marks for aircraft (Painting and markings).
4.	<b>Engines and Propellers:</b> Maintenance and overhaul procedures, Engine testing & operation, General Electric J85 afterburner and nozzle system, Type 1307 fuel control system, Allison Engine Company 501-D13 lubrication system.
5.	<b>Electrical Systems:</b> DC power supplies, AC power supplies, Power Conversion Equipment, External and Auxiliary power supplies, Power distribution, Circuit controlling devices, Circuit protection devices and systems, Warning indicating systems, Electrical diagrams and identification schemes, Three-phase tachometer system, A typical EGT thermocouple, Components of an automatic pilot and flight control system of bendix avionics, Typical single-engine aircraft power distribution systems (Piper aircraft), Boeing 727 power distribution system, Batteries maintenance procedures, Starter-generator used on Allison T63.
6.	<b>Aircraft Instruments:</b> A typical electronic attitude director indicator (EADI) and electronic horizontal situation

	indicator (EHSI), of Collins Division, Rockwell international, Engine Indicating and Crew Alerting System (EICAS) of Boeing, Electronic Centralized Aircraft Monitoring System (ECAM) of Airbus, Instrument systems.
7.	<b>Communication Systems:</b> VHF transceiver type KY 196, 8048 Eight-bit micro-computer of King Radio Corp., Typical HF amplitude modulated SSB transceiver, Antenna tuning Unit, Typical communication system of Boeing 747.
8.	<b>Navigation Systems:</b> Typical ADF installation, Typical VOR installation, Typical block diagrams of localiser, Glide path and markers, Typical interrogator block diagram, Typical transponder block diagram, Typical weather radar, Moving aerial doppler radar system, Typical FMCW altimeter, RNAV – NP-2041 A Bendix.

### Reference Books:

1. Aircraft maintenance and repair: Cores, Watkins and dell
2. Aircraft gas turbine technology: Treager
3. Airframe power plant mechanics hand books: Us Department of Transportment
4. Aircraft Hydraulic system: Vlawillian A Neese
5. Aircraft Radio Systems: James Powell
6. Aircraft Electrical Systems: Pallet
7. Aircraft Electricity & Electronics: Eismin

