5th Semester	RAE5D002	Aircraft Systems and Instrumentation	L-T-P 3-0-0	3 CREDITS

COURSE OUTCOMES

1. Understand about aircraft control system
2. Apply the working principle hydraulic system for a modern aircraft and explain its function in detail
3. Understand the working piston & gas turbine engines and the purpose of each system
4. Understand the working of air,conditioning system & Fire protection system.
5. Remember the working principle of aircraft instruments and engine instruments in detail.

Module I AIRPLANE CONTROL SYSTEMS-I **8 Hours**

Conventional Systems - Power assisted and fully powered flight controls - Power actuated systems – Engine control systems - Push pull rod system, flexible push pull rod system , Digital fly by wire systems.

Module II AIRPLANE CONTROL SYSTEMS-II **8 Hours**

Hydraulic systems , Study of typical workable system , components , Hydraulic system controllers , Modes of operation , Pneumatic systems , Advantages , Working principles , Typical Air pressure system – Brake system , Typical Pneumatic power system , Components, Landing Gear systems , Classification – Shock absorbers , Retractive mechanism

Module III ENGINE SYSTEMS. **8 Hours**

Fuel systems, multi-engine fuel systems, lubricating systems, starting and ignition systems of piston and jet engines.

Module IV AUXILLIARY SYSTEM **7 Hours**

Air conditioning,Pressurization systems, Oxygen systems , Fire protection systems, De-icing and anti,icing systems.

Module V AIRCRAFT INSTRUMENTS **10 Hours**

Flight Instruments and Navigation Instruments – Gyroscope , Accelerometers, Air speed Indicators – TAS, EAS, Mach Meters , Altimeters , Principles and operation , Study of

various types of engine instruments , Tachometers , Temperature gauges , Pressure gauges , Operation and Principles, Communication and Navigation Systems Instrument landing systems.

Books:

1. Pallet, E.H.J, "Aircraft Instruments & Principles", Pitman & Co
2. Mekinley, J.L. and R.D. Bent, "Aircraft Power Plants", McGraw Hill
3. Mckinley, J.L. and Bent R.D. "Aircraft Maintenance & Repair", McGraw Hill