AMAEE26 AERO ENGINEERING THERMODYNAMICS

UNIT-1 BASIC THERMODYNAMICS
1.1 Systems, Zeroth Law, First Law- Heat and work transfer in flow,
1.2 Second law, Clausius statement
1.3 Concept of entropy entropy change in non-flow processes.

UNIT-2 AIR CYCLES
2.1 Otto, Diesel, Dual combustion and Brayton combustion cycles
2.2 Air standard efficiency- Mean effective pressure
2.3 Actual and theoretical PV diagrams of two stroke and four stroke IC Engines.

UNIT-3 THERMODYNAMICS OF ONE DIMENSIONAL FLUID FLOW
3.1 Application of continuity, momentum and energy equations
3.2 Rankine cycle- Isentropic flow of ideal gases through nozzles
3.3 Simple jet propulsion system- Thrust rocket motor- Specific impulse.

UNIT-4 REFRIGERATION AND AIR CONDITIONING
4.1 Principles of refrigeration, Air conditioning - Heat pumps
4.2 Vapour compression - Vapour absorption types
4.3 Coefficient of performance, Properties of refrigerants.

UNIT-5 AIR COMPRESSORS
5.1 Classification and working principle of compressors (Descriptive Treatment).
5.2 Isothermal and Isentropic efficiency of air compressors.

References Books:
1. Mayhew, A. and Rogers, B., "Engineering Thermodynamics", Longman Green & Co. Ltd., London, E.L.B.S. Edition, 1990.
2. Van Wylen, G.J. and Sonntag, R.E., "Fundamentals of Classical Thermodynamics (S.I.Version)", Second Edition, 1986.
3. Bacon, D.H., "Engineering Thermodynamics", Butterworth & Co., London, 1989