

AMAC-15 REFRIGERATION SYSTEMS DESIGN

UNIT-1 REFRIGERATION CYCLES- ANALYSIS

- 1.1 Development of Vapor Compression Refrigeration Cycle from Reverse Carnot Cycle-
- 1.2 Conditions for high COP-deviations from ideal vapor compression cycle,
- 1.3 Multipressure System, Cascade Systems- Analysis.
- 1.4 Vapor Absorption Systems-Aqua Ammonia & Li-Br Systems,
- 1.5 Steam Jet Refrigeration Thermo Electric Refrigeration,
- 1.6 Air Refrigeration cycles, Heat pumps.

UNIT-2 MAIN SYSTEM COMPONENTS

- 2.1 Compressor
- 2.2 Types, performance, Characteristics,
- 2.3 Types of Evaporators & Condensers and their functional aspects,
- 2.4 Expansion Devices and their Behavior with fluctuating load, cycling controls

UNIT-3 REFRIGERANTS

- 3.1 Classification of Refrigerants,
- 3.2 Refrigerant properties, Oil Compatibility,
- 3.3 Environmental Impact- Montreal / Kyoto protocols-Eco Friendly Refrigerants,
- 3.4 Alternatives to HCFCs, Secondary Refrigerants

UNIT-4 SYSTEM BALANCING

- 4.1 Estimation of Cooling Load,
- 4.2 System Equilibrium and Cycling Controls.

UNIT-5 ELECTRICAL DRIVES & CONTROLS

- 5.1 Electric circuits in Refrigerators and Air conditioners,
- 5.2 Types of Motors, Starters, Relays,
- 5.3 Thermostats, Pressure controls and other controls.

References Books:

1. Dossat R.J., Principles of refrigeration, John Wiley , S.I. Version (2001).
2. Stoecker W.F., Refrigeration and Air conditioning , McGraw-Hill Book Company , 1989.
3. Jordan and Priester, Refrigeration and Air conditioning 1985.
4. Langley, Billy C., 'Solid state electronic controls for HVACR' pentice-Hall 1986.