

UNIT - I**Chapter 1 : Advanced Vapour Compression Cycles****1-1 to 1-33**

Review of vapour compression cycle, Trans-critical cycle and their types retical treatment, Ejector refrigeration cycle and their types. Presentation of cycle on P-h and T-s chart.

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UNIT - IV**Chapter 4 : Ventilation and Infiltration 4-1 to 4-29**

Indoor Design Criteria and Thermal Comfort : Basic parameters, factors affecting thermal comforts, Comfort-Discomfort Diagrams, Indoor Temperature, Relative Humidity, and Air Velocity

Indoor Air Quality : Indoor Air Contaminants, Basic Strategies to Improve Indoor Air Quality,

Outdoor Design Conditions : Outdoor Air Requirements for Occupants, The Use of Outdoor Weather Data in Design, Outdoor Weather Characteristics and their Influence.

Ventilation for cooling : Natural ventilation, mechanical ventilation

Space air distribution : Design of air distribution systems, Types of air distribution devices : Airflow patterns inside Conditioned space : Stratified mixing flow : Cold air distribution : Displacement flow.

Spot cooling / heating : Selection of supply air outlets.

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UNIT - V**Chapter 5 : Heat Load Estimation in Building Structures 5-1 to 5-34**

Solar radiation, Heat gain through fenestrations, Space load characteristics, cooling load and coil load calculations, Overall heat transmission coefficient, air spaces, sol-air temperature, Decrement factor and time lag method,, Cooling Load Temperature Difference method (CLTD) or Equivalent Temperature Differential (ETD), detailed calculation procedure using CLTD method, Total heat balance.
Energy-efficient and cost-effective measures for building envelope, Concept of ECBC

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UNIT - VI

Chapter 6 : Advanced Air Conditioning Systems

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Desiccant-Based Air Conditioning Systems :

Introduction, Sorbents & Desiccants, Dehumidification, Liquid Spray Tower, Solid Packed Tower, Rotary Desiccant Dehumidifiers, Hybrid Cycles, Solid Desiccant Air Conditioning (Theoretical treatment)

Evaporative-Cooling Air Conditioning Systems, Thermal Storage Air Conditioning Systems, Clean-Room Air Conditioning Systems, Radiant cooling. (Theoretical treatment)

Heat Pump Systems : Heat Pump Cycle, different heats pump Circuits.

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