AMAC-25 DESIGN OF CONDENSERS, EVAPORATORS AND COOLING TOWERS

UNIT-1 INTRODUCTION

1.1 Principles of heat transfer,
1.2 Types of heat exchangers,
1.3 Standard Representation,
1.4 Parts description, TEMA Classifications.

UNIT-2 CONDENSERS

2.1 Estimation of heat transfer coefficient,
2.2 Fouling factor, Friction factor.
2.3 Design procedures, Wilson plots,
2.4 Designing different types of condensers,
2.5 BIS Standards

UNIT-3 EVAPORATORS

3.1 Different types of evaporators, Design procedure,
3.2 Selection procedure,
3.3 Thermal Stress calculations, matching of components,
3.4 Design of evaporative condensers

UNIT-4 COOLING TOWERS

4.1 Types of Cooling towers,
4.2 Analytical and graphical design procedures,
4.3 Tower Characteristics Parametric analysis, Packaging,
4.4 Flow control strategies and energy saving opportunities,
4.5 Assessment of cooling towers.

UNIT-5 COMPACT AND PLATE HEAT EXCHANGER

5.1 Types- Merits and Demerits
5.2 Design of compact heat exchangers, plate heat exchangers,
5.3 Mixing of plates, performance influencing parameters, limitations.

References

1. Arthur, P. Frass, Heat Exchanger Design, John Wiley and Sons, 1988.
2. Kern K.H., Process heat transfer, McGraw-Hill, 2002.
3. Sarit Kumar Das, Process Heat Transfer, Narosa Publishing House, 2009.
4. Lieke Wang, Bengt Sundén, Raj M.. Manglik., Plate Heat Exchangers: Design, Applications and Performance, WIT Press, 2007.