

# AMEM04 ELECTRICAL MACHINES

## UNIT-1 INTRODUCTION

- 1.1 Basic concept of Electrical Engineering; Resistance Inductance Capacitance Resistance connected in series and Parallel
- 1.2 Capacitance connected in series and parallel
- 1.3 Concept of AC/DC currents and AC/DC Voltages, EMF Potential difference, Work, Power and Energy.

## UNIT-2 DC NETWORKS

- 2.1 Kirchoff's Laws, Node voltage and Mesh current Methods Delta – Star and Star - Delta Conversion Superposition principle Thevenin's and Norton's Theorems

## UNIT-3 TRANSFORMER

- 3.1 Construction and principle of X'Mers EMF equation Ideal X'Mer Shell type & Core type X'Mer Phasor Diagrams Equivalent Circuits,
- 3.2 Regulation and Efficiency of X'Mer, Capacity of X'Mer, and Losses,
- 3.3 Introduction to Auto X'Mer

## UNIT-4 DC MACHINES

- 4.1 construction and Principle of DC generation and DC Motor, Back emf of DC Motor, Types of DC Motor,
- 4.2 Reversal of Direction of Rotation of DC Motor, Starting of DC Motor, Characteristics of DC Motor, Uses of DC Motor, Losses in DC Machine.

## UNIT-5 ALTERNATOR

- 5.1 Construction and Working principle of Alternator, Application of Alternators.

## UNIT-6 SYNCHRONOUS MOTORS

- 6.1 Principle of Operation, Application of Synchronous Motors
- 6.2 Comparison between Synchronous Motor and Induction Motors

### Reference Books:

1. Principle of Electrical Machines by Mehta V K and Mehta Rohit
2. Electric Machines by Ashfaq Husain and Harroon Ashfaq
3. Electrical Machinery by P S Bimbhra.