UE00 ELECTRICAL AND ELECTRONICS SCIENCE

Introduction: Basic electrical quantities, Electric circuit sources and circuit elements and their behavior (Active and passive).


Sinusoidal Steady-State Response of Circuits: Concept of Phasors, Phasor representation of circuit elements, Complex notation representation, Series and parallel circuits, Power and power factors, Resonance in series and parallel circuits, Balanced 3–phase voltage, Current and power relations, 3–phase power measurement.

Magnetic Circuits: Concept of Magnetic circuits, B–H curve, Calculation of Magnetic Circuits, Iron Losses.

Single–Phase Transformers: Constructional feature, EMF equation, Ideal transformer, Open and short circuit tests, Voltage regulation and efficiency.

Rotating Electrical Machines: Construction, Operating principles and Applications of DC generator, DC motor, Three phase Induction motor and Single phase induction motors.

Electrical safety and Wiring: Electrical safety and standards, House hold wiring and electric appliances.

Energy Management: Conservation efforts, Auditing.

Electronic Devices: P–N diode, BJT, SCR, FET, MOSFET, Their V–I characteristics and applications (Diode as rectifier, Zener diode as voltage regulator).

Laboratory Work

Textbooks

Reference Books