

ELE- OE1.2 General Electricals

Unit 1 Introduction

05 Hours

Alternating current (AC) and Direct current (DC), graphical and symbolic representation of AC and DC. AC parameters, peak value, peak to peak value, rms value, period, frequency of voltage and current. Power, power rating. Non sinusoidal waveforms.

Unit 2 Sources of Energy and measurement

15Hours

Sources of electric energy - cell; types, Batteries - rechargeable batteries, working principle. AC generation, AC generator- Single phase and poly phase system- salient and non salient pole generator, power formula, single line representation of power system, power distribution system.

Voltage, Current, Resistance, Capacitance, Inductance, Electrical conductors and Insulators, Ohm's law, Series and parallel combinations of resistors, Galvanometer, Ammeter, Voltmeter, Multimeter, Transformers, Electrical energy, Power, Kilowatt hour (KWh), consumption of electrical power.

Unit 3 Wiring Concept and Electrical devices

25Hours

Single phase and three phase connections, Basics of House wiring phase neutral and earthing (colour codes), need for earthing- fuse and plugs-wiring fundamentals- typical wiring diagram-construction of extension board., Star and delta connection, Protective circuits: Electric shock, First aid for electric shock, Overloading Earthing and its necessity, Short circuiting, Lightning conductor , MCB , ELCB, Insulation, Inverter, UPS.

Principles of working, parts and servicing of Electric fan, Electric Iron box, Water heater; Induction heater, Microwave oven; Refrigerator, Concept of illumination, Electric bulbs, CFL, LED lights, Energy efficiency in electrical appliances, IS codes & IE codes. Switches and its types

Applications of electricity -lighting (incandescent bulb, LED and fluorescent lamp), heating and induction motors-working.

Books Recommended:

Prerequisites: Basic knowledge of Electricity and Magnetism.