

Lesson Plan

Name of the faculty : Sh Hitesh Aggarwal
Discipline : Mechanical Engineering
Semester : 3rd Semester
Subject : BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
Work Load : (2 Periods) /Week

Theory		
Week	Lecture/Day	Topics
1 st	1 st	Unit 1. Basic Electrical Quantities Definition of voltage, current, power and energy with their units
	2 nd	Name of instruments used for measuring above quantities
2 nd	3 rd	Connection of these instruments in an electric circuit.
	4 th	Difference between ac and dc. Various applications of electricity.
3 rd	5 th	Unit 2. AC Fundamentals Electromagnetic induction-Faraday's Laws, Lenz's Law;
	6 th	Fleming's rules, Principles of a.c. Circuits;
4 th	7 th	Alternating emf, Definition of cycle, frequency, amplitude and time period.
	8 th	Concept of electrical power, Concept of phase and phase difference.
5 th	9 th	Concept of resistance, inductance and capacitance in simple a.c. circuit.
	10 th	Concept of three phase system; star and delta connections; voltage and current relationship ASSIGNMENT 1

6 th	11 th	SESSIONAL I
	12 th	Unit 3. Transformer Working principle and construction of single phase transformer, transformer ratio, emf equation, tapping of transformer
7 th	13 th	Power transformer, auto transformer and distribution transformer (brief idea and difference between them),
	14 th	Cooling of transformer, applications of various types of transformers.
8 th	15 th	Unit 4. Distribution System Difference between high and low voltage distribution system, identification of three-phase wires, neutral wire and earth wire in a low voltage distribution system.
	16 th	Identification of voltages between phases and between one phase and neutral. Difference between three-phase and single-phase supply
9 th	17 th	UNIT 5. Electric Motor Description and applications of single-phase and three-phase motors. Introduction to DC motor and its applications,
	18 th	Difference between ac and dc motor, Connection and starting of three-phase induction motors by DOL and star-delta starter. Changing direction of rotation of a given 3 phase induction motor. Motors used for driving pump, compressor and e vehicles. ASSIGNMENT 2
10 th	19 th	SESSIONAL II
	20 th	UNIT 6. Domestic Installation Distinction between light-fan circuit and single phase power circuit, sub-circuits, various accessories and parts of domestic electrical installation.
11 th	21 st	Different types of wires and their specification, Identification of wiring systems. Colour coding of electrical wires.
	22 nd	UNIT 7. Electrical Safety Electrical shock and precautions against shock, treatment of electric shock
12 th	23 rd	concept of fuses and their classification, concept of earthing and various types of earthing,
	24 th	brief description of range of protective devices like MCB, ELCB, and RCB

13 th	25 th	UNIT 8. Basic Electronics Concept of semi conductor, types- P and N type. Diodes and their applications
	26 th	Transistor – PNP and NPN. Their characteristics and uses.
14 th	27 th	Introduction to integrated circuit (IC) Different types of ICs used in electric drives and their control circuit.
	28 th	SESSIONAL III
15 th	29 th	REVISION OF SYLLABUS
	30 th	REVISION OF SYLLABUS

