UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA

LESSON PLAN

SUBJECT- Th.4(a). BASIC ELECTRICAL ENGINEERING

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DEPARTMENT OF ELECTICAL ENGINEERING
(Session: 2020-21)

Weeks	Topics to be covered
1	**Unit 1: FUNDAMENTALS** Concept of current flow; Concept of source and load.
	State Ohm's law and concept of resistance; Relation of V, I & R in series circuit ; Relation of V, I & R in parallel circuit
2	Division of current in parallel circuit ; Effect of power in series & parallel circuit
	Kirchhoff's Law; Simple problems on Kirchhoff's law.
3	CLASS TEST-1
	Unit 2: A.C. THEORY Generation of alternating emf. 2.2 Difference between D.C. & A.C
4	Define Amplitude, instantaneous value, cycle, Time period, frequency, phase angle, phase difference.
	State & Explain RMS value, Average value, Amplitude factor & Form factor with Simple problems; Represent AC values in phasor diagrams.
5	AC through pure resistance, inductance & capacitance
	AC though RL, RC, RLC series circuits.
6	Simple problems on RL, RC & RLC series circuits.
	Concept of Power and Power factor; Impedance triangle and power triangle
7	CLASS TEST-2
	Unit 3: GENERATION OF ELECTRICAL POWER Give elementary idea on generation of electricity from thermal power station with block diagram
8	Give elementary idea on generation of electricity from hydro power station with block diagram

	Give elementary idea on generation of electricity from nuclear power station with block diagram

9	**Unit 4: CONVERSION OF ELECTRICAL ENERGY** Introduction of DC machines ; Main parts of DC machines
	Classification of DC generator
10	Classification of DC motor.
	Uses of different types of DC generators & motors; Types and uses of single phase induction motors.
11	Concept of Lumen; Different types of Lamps (Filament, Fluorescent, LED bulb) its Construction and Principle.
	Star rating of home appliances (Terminology, Energy efficiency, Star rating Concept)
12	CLASS TEST- 4
	Unit- 5: WIRING AND POWER BILLING Types of wiring for domestic installations ; Layout of household electrical wiring (single line diagram showing all the important component in the system)
13	List out the basic protective devices used in house hold wiring
	Calculate energy consumed in a small electrical installation
14	CLASS TEST- 5
	Unit- 6: MEASURING INSTRUMENTS Introduction to measuring instruments ; Torques in instruments.
15	Different uses of PMMC type of instruments (Ammeter & Voltmeter); Different uses of MI type of instruments (Ammeter & Voltmeter); Draw the connection diagram of A.C/ D.C Ammeter, voltmeter, energy meter and wattmeter. (Single phase only).
	Revision