

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA

Academic Lesson Plan for 1st Semester – 2023 (Winter)

Name of the teaching faculty: Sri Kishore Chandra Prusty, PTGF(Electrical)

Dept.: Department of Electrical Engineering

Semester: 1st,

Subject: Theory 4A: Basic Electrical Engineering,

No of Periods per week: 2,

Total Periods: 30,

End semester Exam: 40 Marks,

Class test: 10 Marks,

Total Marks: 50 Marks

Week	Period	Unit/Chapter	Topic to be Covered
1st	1st	Unit 1 Fundamentals	Concept of current flow , source , load
	2nd		State Ohm's law ,Concept of Resistance & Relation of V,I,R in series circuit and parallel circuit
2nd	1st		Division of current in parallel circuit, Effect of power in series & parallel circuit. & Kirchhoff's Law.
	2nd		Problems on Kirchhoff's law
3rd	1st	Unit 2 A.C. Theory	Generation of alternating emf & Difference between D.C. & A.C.
	2nd		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.
4th	1st		Represent AC values in phasor diagrams. AC through pure resistance, inductance & capacitance
	2nd		AC through RL, RC, RLC series circuits. Simple problems on RL, RC & RLC series circuits.
5th	1st		Concept of Power and Power factor & Impedance triangle and power triangle
	2nd	Unit 3 Generation of Elect. Power	Elementary idea on generation of electricity from thermal power station with block diagram

6th	1st		Elementary idea on generation of electricity from hydro power station with block diagram
	2nd		Elementary idea on generation of electricity from nuclear power station with block diagram
7th	1st	Unit 4 Conversion of Electrical Energy	Introduction of DC machines.
	2nd		Main parts of DC machines
8th	1st		Classification of DC generator Classification of DC motor.
	2nd		Uses of different types of DC generators & motors.
9th	1st		Types and uses of single phase induction motors. Concept of Lumen
	2nd		Different types of Lamps (Filament, Fluorescent, LED bulb) its Construction and Principle
10th	1st	Unit 5 Wiring and Power Billing	Types of wiring for domestic installations.
	2nd		Layout of household electrical wiring (single line diagram showing the entire important component in the system).
11th	1st		List out the basic protective devices used in house hold wiring.
	2nd		Calculate energy consumed in a small electrical installation
12th	1st	Unit 6 Measuring Instrument	Introduction to measuring instruments.
	2nd		Torques in instruments.
13th	1st		Different uses of PMMC type of instruments (Ammeter & Voltmeter).
	2nd		Different uses of MI type of instruments (Ammeter & Voltmeter).
14th	1st		Draw the connection diagram of A.C/ D.C Ammeter, voltmeter, energy meter and wattmeter. (Single phase only).
	2nd		Revision of Unit 1 ,2 &3

15th	1st		Revision of Unit 4 ,5 & 6
	2nd		Discussion & practice of previous year questions.

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