Discipline :CIVIL ENGINEERING	Semester:- 2ND Sem	Name of the teaching faculty:- MANMOHAN PANDA
Subject:- Fundamentals of Electrical & Electronics Engineering	No. of Days/week class Allotted :-4	No. of weeks:-15 SESSION- 2024-2025 SUMMER From 04.02.2025
No. of week	No. of class	Topic to be Taught
1st	1st	Introduction class
	2nd	Introduction to Electric and Magnetic Circuits
	3rd	EMF, Current, Potential Difference
	4th	Concept of Power and Energy
2nd	1st	M.M.F, magnetic force, permeability
	2nd	Hysteresis loop, reluctance, leakage factor
	3rd	BH curve
	4th	Concept of Electromagnetic induction
3rd	1st	Faraday's laws of electromagnetic induction, Lenz's law
	2nd	Dynamically induced emf; Statically induced emf
	3rd	Equations of self and mutual inductance
	4th	Analogy between electric and magnetic circuits
4th	1st	A.C. Circuits: Cycle, Frequency, Periodic time, Amplitude, Angular velocity,
	2nd	RMS value, Average value, Form Factor Peak Factor
	3rd	Impedance, phase angle, and power factor
	4th	Mathematical and phasor representation of alternating emf and current
5th	1st	Voltage and Current relationship in Star and Delta connections
	2nd	A.C in resistors
	3rd	A.C in inductors
	4th	A.C in capacitors
	1st	A.C in resistors, inductors and capacitors
	2nd	A.C in R-L series circuit with phasor diagram
		A.C in R-C series circuit with phasor diagram

6th	3rd	R-L-C series circuits with phasor diagram
	4th	R-L-C parallel circuits with phasor diagram
7th	1st	Power in A. C. Circuits, power triangle
	2nd	Transformer and Machines: General construction and principle of different type of transformers
	3rd	Emf equation and transformation ratio of transformers
	4th	Concept of Auto transformer
8th	1st	Construction and Working principle of DC motors
	2nd	Basic equations and characteristic of motors
	3rd	Overview of Electronic Components & Signals: Passive Active Components: Resistances, Capacitors
	4th	Passive Active Components: Inductors, Diodes
9th	1st	Transistors, FET and their Applications
	2nd	MOS and CMOS and their Applications
	3rd	Concept and simple problems of Resistance
	4th	Concept and simple problems of Capacitor
10th	1st	Concept and simple problems of Inductor
	2nd	Definition, classification and Working of PN junction Diode
	3rd	Definition, classification and Working of LED
	4th	Definition, classification and Working of Zener Diode
11th	1st	Definition, classification and Working of transistor
	2nd	Definition, classification and Working of FET
	3rd	Concept of MOS and CMOS
	4th	Signals: DC/AC, voltage/current, periodic/non-periodic signals
	1st	Average, rms, peak values, different types of signal waveforms
	2nd	Ideal/non-ideal voltage/current sources
	3rd	Independent/dependent voltage current sources, (Definitions)
	4th	

12th	5th	Overview of Analog Circuits: Operational Amplifiers-Ideal Op-Amp, Practical op amp
13th	1st	Open loop and closed loop configurations
	2nd	Application of Op-Amp as amplifier
	3rd	Application of Op-Amp as adder
	4th	Application of Op-Amp as differentiator
14th	1st	Application of Op-Amp as integrator
	2nd	Overview of Digital Electronics: Introduction to Boolean Algebra
	3rd	Electronic Implementation of Boolean Operations
	4th	Gates-Functional Block Approach (Simple problems of Number system)
15th	1st	Storage elements-Flip Flops-A Functional block approach
	2nd	Counters: Ripple, Up/down and decade
	3rd	Introduction to digital IC Gates (of TTL Type)
	4th	Previous year questions discussion

M.M. Panda
01/02/2025

PREPARED BY

MANMOHAN PANDA

LECTURER EE