LESSON PLAN

SUB: FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGG.

BRANCH:- ELECTRICAL ENGG.

SEMESTER: 1st

NAME OF FACULTY: NIBEDITA HO

& TAPAN KUMAR DAS

GOVERNMENT POLYTECHNIC, BHADRAK

SESSION:2024-2025

14-08-24

Hod ,Math & Sc.

Academic Co-ordinator

Academic Co-ordinator

Principal
Govt. Polytechnic, Bhadrak

Principal
Govt. Polytechnic
Bhadrak

Discipline: Electrical Engg.	Semester: 1st	Name of the Teaching Faculty :NIBEDITA HO & TAPAN KUMAR DAS
Subject: Fundamentals of Electrical & Electronics Engg.	No. of Days/per week class allotted:4	Semester from date: 01.07.2024 to 16.12.2024 No. of Weeks:15
Week	**Class Day**	**Theory**
1st	1st	**UNIT I** Overview of Electronic Components & Signals: Passive Active Components: Resistances, Capacitors, Inductors
	2nd	Passive Active Components: Resistances, Capacitors, Inductors
	3rd	Diodes, Transistors, FET, MOS and CMOS and their Applications.
	4th	Concept and simple problems of Resistance, Capacitor & Inductor
2nd	1st	Definition, classification and Working of diode
	2nd	(PN juction,LED, Zener) diodes
	3rd	transistor, FET, Concept of MOS and CMOS)
	4th	Signals: DC/AC, voltage/current,
3rd	1st	periodic/non-periodic signals,
	2nd	average, rms, peak values, different types of signal waveforms,
	3rd	Ideal/non-ideal voltage/current sources
	4th	independent/dependent voltage current sources
4th	1st	**UNIT II** Overview of Analog Circuits: Operational Amplifiers-Ideal Op-Amp
	2nd	Practical op amp
	3rd	Open loop and closed loop configurations
	4th	Application of Op-Amp as amplifier
5th	1st	adder
	2nd	differentiator
	3rd	integrator
	4th	**UNIT III** Overview of Digital Electronics: Introduction to Boolean Algebra

6th	1st	Introduction to Boolean Algebra
	2nd	Electronic Implementation of Boolean Operations,
	4th	Gates-Functional Block Approach (Simple problems of Number system)
7th	1st	Gates-Functional Block Approach (Simple problems of Number system)
	2nd	Storage elements-Flip Flops ,A Functional block approach
	3rd	counters: Ripple, Up/down and decade
	4th	counters: Ripple, Up/down and decade
	5th	Introduction to digital IC Gates (of TTL Type)
8th	1st	**Unit IV** Electric and Magnetic Circuits: EMF, Current, Potential Difference
	2nd	Power and Energy
	3rd	M.M.F, magnetic force, permeability
	4th	hysteresis loop
9th	1st	reluctance, leakage factor and BH curve
	2nd	Electromagnetic induction
	3rd	Faraday's laws of electromagnetic induction, Lenz's law
	4th	Dynamically induced emf; Statically induced emf
10th	1st	Equations of self and mutual inductance
	2nd	Analogy between electric and magnetic circuits.
	3rd	**Unit V** A.C. Circuits Cycle, Frequency, Periodic time, Amplitude, Angular velocity
	4th	RMS value, Average value
11th	1st	Form Factor Peak Factor, impedance, phase angle, and power factor
	2nd	Mathematical and phasor representation of alternating emf and current
	3rd	Problems of RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, and power factor
	4th	Voltage and Current relationship in Star and Delta connections

12th	1st	Problems on Star and Delta connections
	2nd	A.C in resistors
	3rd	A.C in inductors
	4th	A.C in Capacitors
13th	1st	A.C in R-L series
	2nd	A.C in R-C series
	3rd	A.C in R-L-C series and
	4th	A.C in parallel circuits
14th	1st	Power in A. C. Circuits, power triangle.
	2nd	**Unit VI** Transformer and Machines: General construction and principle of different type of transformers
	3rd	Emf equation and transformation ratio of transformers, Auto transformers
	4th	Construction and Working principle of DC motors
15th	1st	Basic equations and characteristic of motors
	2nd	Previous year question Practice
	3rd	Previous year question Practice
	4th	Previous year question Practice

14.08.24

Signature of Faculty