GIET
In Pursuit of Innovation

GIETPOLYTECHNIC, JAGATPUR, CUTTACK

LESSON PLAN

Discipline: Mechanical Engg. &Comp.Sc Engg.	Semester: 2nd	Name Of The Teaching Faculty: SUDIPTA KUMAR DAS
Subject: Fundamentals of Electrical & Electronics Engg.	No. Of Days Per Week Class Allotted: 04P Lecture:04	Semester From Date: 04/02/2025 To Date: 17/05/2025 No.ofweeks:15
Week	Class Day	Theory Topic
1st week		**UNIT I- Overview of Electronic Components & Signals:**
	1st	**Passive Active Components**: Concept of Resistances, Capacitors and Inductors and their Applications.
	2nd	Concept of Resistances, Capacitors and Inductors and their Applications.
	3rd	Simple problems of Resistance, Capacitor & Inductor.
	4th	Simple problems of Resistance, Capacitor & Inductor.
2nd week	1st	Definition, classification and Working of diode(PN junction, LED, Zener)
	2nd	Definition, classification and Working of diode(PN junction, LED, Zener)
	3rd	Definition, classification and Working of transistor
	4th	Definition, classification and Working of transistor
3rd week	1st	Definition, classification and Working of FET
	2nd	Definition, classification and Working of FET
	3rd	Concept of MOS and CMOS and their Applications
	4th	Concept of MOS and CMOS and their Applications
4th week	1st	DC/AC, Voltage/Current, Periodic/Non-periodic signals, average, rms, peak values. (Definitions)
	2nd	Different types of signal waveforms, Ideal/non-ideal voltage/current sources, independent/dependent voltage current sources. (Definitions)
	3rd	Different types of signal waveforms, Ideal/non-ideal voltage/current sources, independent/dependent voltage current sources. (Definitions)
		UNIT II- Overview of Analog Circuits:
	4th	Operational Amplifiers-Ideal Op-Amp, Practical op amp
5th week	1st	Operational Amplifiers-Ideal Op-Amp, Practical op amp
	2nd	Open loop and closed loop configurations
	3rd	Open loop and closed loop configurations
	4th	Application of Op-Amp as amplifier, adder, differentiator and integrator

	1st	Application of Op-Amp as amplifier, adder, differentiator and integrator
6thweek		**UNIT III -Overview of Digital Electronics:**
	2nd	Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problemsof Number system)
	3rd	Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problemsof Number system)
	4th	Storage elements-Flip Flops-A Functional block approach,
7thweek	1st	Storage elements-Flip Flops-A Functional block approach,
	2nd	Counters: Ripple, Up/down and decade, Introduction to digital IC Gates (of TTL Type).
	3rd	Counters: Ripple, Up/down and decade, Introduction to digital IC Gates (of TTL Type).
	4th	Counters: Ripple, Up/down and decade, Introduction to digital IC Gates (of TTL Type).
8thweek		**Unit IV -Electric and Magnetic Circuit:**
	1st	EMF, Current, Potential Difference, Power and Energy
	2nd	EMF, Current, Potential Difference, Power and Energy
	3rd	M.M.F, magnetic force, permeability,hysteresis loop, reluctance, leakage factor and BH curve
		M.M.F, magnetic force, permeability,hysteresis loop, reluctance, leakage factor and BH curve
9thweek	1st	M.M.F, magnetic force, permeability,hysteresis loop, reluctance, leakage factor and BH curve
	2nd	Electromagnetic induction, Faraday's laws of electromagnetic induction, Lenz's law;
	3rd	Electromagnetic induction, Faraday's laws of electromagnetic induction, Lenz's law;
	4th	Dynamically induced emf; Statically induced emf
10thweek	1st	Dynamically induced emf; Statically induced emf
	2nd	Equations of self and mutual inductance; Analogy between electric and magnetic circuits.
	3rd	Equations of self and mutual inductance; Analogy between electric and magnetic circuits
	4th	Equations of self and mutual inductance; Analogy between electric and magnetic circuits
11thweek		**Unit V- A.C. Circuits:**
	1st	Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, and power factor
	2nd	Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, and power factor
	3rd	Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, P.F

	4th	Mathematical and phasor representation of alternating emf and current
12th week	1st	Mathematical and phasor representation of alternating emf and current
	2nd	Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors
	3rd	Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors
	4th	Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors
13th week	1st	A.C in resistors, inductors and capacitors
	2nd	A.C in R-L series, R-Cseries, R-L-C series and parallel circuits
	3rd	A.C in R-L series, R-Cseries, R-L-C series and parallel circuits
	4th	Power in A. C. Circuits, power triangle.
14th week	1st	Power in A. C. Circuits, power triangle.
		Unit VI- Transformer and Machine:
	2nd	General construction and principle of different type of transformers
	3rd	General construction and principle of different type of transformers
	4th	Emf equation and transformation ratio of transformer
	1st	Auto transformers; Construction and Working principle of motors
	2nd	Auto transformers; Construction and Working principle of motors
	3rd	Basic equations and characteristic of motors.
	4th	Basic equations and characteristic of motors.

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