



GOVERNMENT POLYTECHNIC, BALASORE

Government of Odisha

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ଵର

LESSON PLAN (WINTER-2025)

Discipline: COMPUTER ENGINEERING & IOT	Semester: 1 ST	Name of the Teaching Faculty: PRAKASH CHANDRA DAS
Subject: Fundamentals of Electrical & Electronics Engineering(Course Code- TH 4(a))	No of Days /per week class allotted: 4	Semester From date: 6 TH August, 2025 No of Weeks: 15
Week	Class Day	Theory / Practical Topics
1st	1st	UNIT I Overview of Electronic Components & Signals: Passive Active Components: Resistances, Capacitors, Inductors,
	2nd	Diodes, Transistors,
	3rd	FET, MOS and CMOS and their Applications.
	4th	Concept and simple problems of Resistance, Capacitor & Inductor
2nd	1st	classification and Working of diode(PN junction,LED, Zener)
	2nd	classification and Working of diode(PN junction,LED, Zener)
	3rd	classification and Working of diode(PN junction,LED, Zener)
	4th	transistor, FET, Concept of MOS and CMOS)
3rd	1st	transistor, FET, Concept of MOS and CMOS)
	2nd	Signals: DC/AC, voltage/current, periodic/non-periodic signals, average, rms, peak values, different types of signal waveforms, Ideal/non-ideal
	3rd	Signals: DC/AC, voltage/current, periodic/non-periodic signals, average, rms, peak values, different types of signal waveforms
	4th	Ideal/non-ideal voltage/current sources, independent/dependent voltage current sources.
4th	1st	UNIT II Overview of Analog Circuits: Operational Amplifiers-Ideal Op-Amp, Practical op amp
	2nd	Operational Amplifiers-Ideal Op-Amp, Practical op amp
	3rd	Operational Amplifiers-Ideal Op-Amp, Practical op amp
	4th	Operational Amplifiers-Ideal Op-Amp, Practical op amp
5th	1st	Open loop and closed loop configurations, Application of Op-Amp as amplifier
	2nd	Open loop and closed loop configurations, Application of Op-Amp as amplifier
	3rd	adder, differentiator and integrator.
	4th	adder, differentiator and integrator.
6th	1st	adder, differentiator and integrator.
	2nd	UNIT III Overview of Digital Electronics: Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problems of Number system)

	3rd	Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problems of Number system)
	4th	Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problems of Number system)
7th	1st	Storage elements-Flip Flops-A Functional block approach,
	2nd	Storage elements-Flip Flops-A Functional block approach,
	3rd	Counters: Ripple, Up/down and decade
	4th	Counters: Ripple, Up/down and decade
8th	1st	Introduction to digital IC Gates (of TTL Type).
	2nd	Introduction to digital IC Gates (of TTL Type).
	3rd	Unit IV Electric and Magnetic Circuits: EMF, Current, Potential Difference, Power and Energy; M.M.F, magnetic force, permeability
	4th	Unit IV Electric and Magnetic Circuits: EMF, Current, Potential Difference, Power and Energy; M.M.F, magnetic force, permeability,
9th	1st	hysteresis loop, reluctance, leakage factor and BH curve; Electromagnetic induction,
	2nd	Faraday's laws of electromagnetic induction, Lenz's law; Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits.
	3rd	Faraday's laws of electromagnetic induction, Lenz's law; Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits.
	4th	Faraday's laws of electromagnetic induction, Lenz's law; Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits.
10th	1st	Faraday's laws of electromagnetic induction, Lenz's law; Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits.
	2nd	Unit V A.C. Circuits: Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor,
	3rd	Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor
	4th	impedance, phase angle, and power factor; Mathematical and phasor representation of alternating emf and current
11th	1st	Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors;
	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	A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.
12th	1st	A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.
	2nd	A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.
	3rd	A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.

13th	4th	A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.
	1st	Unit VI Transformer and Machines: General construction and principle of different type of transformers; Emf equation and transformation ratio of transformers;
	2nd	Unit VI Transformer and Machines: General construction and principle of different type of transformers; Emf equation and transformation ratio of transformers;
	3rd	Unit VI Transformer and Machines: General construction and principle of different type of transformers; Emf equation and transformation ratio of transformers;
	4th	Auto transformers; Construction and Working principle of motors; Basic equations and characteristic of motors.
14th	1st	Auto transformers; Construction and Working principle of motors; Basic equations and characteristic of motors.
	2nd	Auto transformers; Construction and Working principle of motors; Basic equations and characteristic of motors.
	3rd	Auto transformers; Construction and Working principle of motors; Basic equations and characteristic of motors.
	4th	Auto transformers; Construction and Working principle of motors;
15th	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.


 19/1/2025
 Faculty


 HOD 20/1/2025