UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA

Academic Lesson Plan for 2nd Semester – 2025 (Summer)

Name of the teaching faculty :Sri Anurag Sethy
Lecturer (E&TC)
Discipline :Electrical & E&TC
Dept. : Department of Mathematics & Science
Semester : 2nd
Subject : Theory 4(a): Fundamentals of Electrical & Electronics Engineering
No of Periods per Week: 4, Total Periods: 60,
End semester Exam : 70 Marks, Class Test(I.A.): 30 Marks,
Total Marks: 100 Marks

Week	Period	Unit / Chapter	Topics to be covered
1st	1st	UNIT I Overview of Electronic Components & Signals:	Introduction to Electronics Components
	2nd	UNIT I Overview of Electronic Components & Signals:	Passive and Active Components.
	3rd	UNIT I Overview of Electronic Components & Signals:	Resistances
	4th	UNIT I Overview of Electronic Components & Signals:	Capacitors, Inductors
2nd	1st	UNIT I Overview of Electronic	Capacitors, Inductors

		Components & Signals:	
	2nd	UNIT I Overview of Electronic Components & Signals:	Concept and simple problems of Resistance, Capacitor & Inductor
	3rd	UNIT I Overview of Electronic Components & Signals:	Diodes: Definition, classification and Working of diode
	4th	UNIT I Overview of Electronic Components & Signals:	PN juction,LED, Zener Diode
	1st	UNIT I Overview of Electronic Components & Signals:	Transistor, FET
	2nd	UNIT I Overview of Electronic Components & Signals:	Transistor, FET
	3rd	UNIT I Overview of Electronic Components & Signals:	Concept of MOS and CMOS
	4th	UNIT I Overview of	Concept of MOS and CMOS

		Electronic Components & Signals:	
4th	1st	UNIT I Overview of Electronic Components & Signals:	DC/AC, voltage/current, periodic/non-periodic signals
	2nd	UNIT I Overview of Electronic Components & Signals:	Ideal/non-ideal voltage/current sources
	3rd	UNIT I Overview of Electronic Components & Signals:	Independent/dependent voltage current sources
	4th	UNIT I Overview of Electronic Components & Signals:	Some Basic Questions Practice on UNIT-1(Previous year questions and Sample Problems)
5th	1st	Unit IV Electric and Magnetic Circuits:	EMF, Current, Potential Difference
	2nd	Unit IV Electric and Magnetic Circuits:	Power and Energy; M.M.F, magnetic force, permeability
	3rd	Unit IV Electric and Magnetic Circuits:	hysteresis loop, reluctance, leakage factor and BH curve
	4th	Unit IV Electric and Magnetic	hysteresis loop, reluctance, leakage factor and BH curve

		Circuits:	
6th	1st	Unit IV Electric and Magnetic	Electromagnetic induction, Faraday's laws of electromagnetic induction, Lenz's law
	2nd	Unit IV Electric and Magnetic	Dynamically induced emf; Statically induced emf
	3rd	Unit IV Electric and Magnetic	Equations of self and mutual inductance
	4th	Unit IV Electric and Magnetic	Analogy between electric and magnetic circuits and Solve related problems.
7th	1st	UNIT II Overview of Analog Circuits	Introduction to Operational Amplifiers
	2nd	UNIT II Overview of Analog Circuits	Ideal Opamp vs Practical Opamp.
	3rd	UNIT II Overview of Analog Circuits	Open loop and closed loop configurations of Opamp
	4th	UNIT II Overview of Analog Circuits	Application of Op-Amp as Integrator and Differentiator
8th	1st	Unit-V : A.C. Circuits	Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value
	2nd	Unit-V : A.C. Circuits	Form Factor Peak Factor, impedance, phase angle, and power factor
	3rd	Unit-V : A.C. Circuits	Mathematical and phasor representation of alternating emf and current.
	4th	Unit-V : A.C. Circuits	Mathematical and phasor representation of alternating emf and current
9th	1st	Unit-V : A.C. Circuits	Voltage and Current relationship in Star and Delta connections
	2nd	Unit-V : A.C. Circuits	A.C in resistors, inductors and capacitors
	3rd	Unit-V : A.C.	A.C in resistors, inductors and

		Circuits	capacitors
	4th	Unit-V : A.C. Circuits	Current voltage in R-L series, R-C series circuit
10th	1st	Unit-V : A.C. Circuits	Current voltage in R-L parallel , R-C parallel circuit.
	2nd	Unit-V : A.C. Circuits	Power in A. C. Circuits, power triangle
	3rd	Unit-V : A.C. Circuits	Solving of its related Problems
	4th	Unit-V : A.C. Circuits	Solving of its related Problems
11th	1st	UNIT III : Overview of Digital Electronics:	Introduction to Boolean Algebra
	2nd	UNIT III : Overview of Digital Electronics:	Introduction to Boolean Algebra.
	3rd	UNIT III : Overview of Digital Electronics:	Electronic Implementation of Boolean Operations
	4th	UNIT III : Overview of Digital Electronics:	UNIT III : Overview of Digital Electronics:
12th	1st	UNIT III : Overview of Digital Electronics:	Sample problems related to Number systems and Logic Gates.
	2nd	UNIT III : Overview of Digital Electronics:	Storage elements-Flip Flops-A Functional block approach
	3rd	UNIT III : Overview of Digital Electronics:	Storage elements-Flip Flops-A Functional block approach
	4th	UNIT III : Overview of Digital Electronics:	Counters: Ripple, Up/down and decade
	1st	UNIT III : Overview of Digital	Counters: Ripple, Up/down and decade.

13th		Electronics:	
	2nd	UNIT III : Overview of Digital Electronics:	Introduction to digital IC Gates
	3rd	Unit-VI :Transformer and Machines	General construction and principle of different type of transformers
	4th	Unit-VI :Transformer and Machines	General construction and principle of different type of transformers.
14th	1st	Unit-VI :Transformer and Machines	Emf equation and transformation ratio of transformers
	2nd	Unit-VI :Transformer and Machines	Auto transformers.
	3rd	Unit-VI :Transformer and Machines	Construction and Working principle of DC motors
	4th	Unit-VI :Transformer and Machines	Basic equations and characteristic of motors.
15th	1st		Revision of UNIT-1&UNIT-4.
	2nd		Revision of UNIT-3 & Unit-5
	3rd		Revision of UNIT-4 & UNIT-6
	4th		VST.

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