

ASIAN SCHOOL OF TECHNOLOGY, KHORDHA
ACADEMIC LESSON PLAN - (SESSION: 2026-27)
FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGG.(TH-6)

Department : Basic Sc.& Humanities	Semester - 1st		Name of the Teaching Faculty: PRODOSH MOHAPATRA
Subject: Fundamentals of Electrical & Electronics Engg.(TH-6)	No. of days/per week class allotted:2p/ week	Total class	Semesterfrom:17 th July 2026 To 17 th April 2027 No.ofweeks:32
Weeks	Class day	Sl.No	Theory Topics
1st	1 st	1	Definition of EMF,Current,Potential Difference
	2 nd	2	Ohm's law and its relation with temp.,concept of source and load
2nd	1 st	3	Relation of V,I & R in series and parallel circuit. voltage and current division rule
	2 nd	4	Power and Energy. Kirchhoff's laws Problems on Kirchhoff's laws
3rd	1 st	5	Basic Definition of M.M.F, magnetic force .Flux, permeability, reluctance permeance
	2 nd	6	Electromagnetic induction, Faraday's laws of electromagnetic induction
4th	1 st	7	Hysteresis loop and BH curve. Analogy between electric and magnetic circuits.
	2 nd	8	AC fundamentals: Definitions of Cycle,Frequency,Periodictime,Amplitude,Angular velocity
5th	1 st	9	RMS value, Average value, Form Factor PeakFactor,phaseangle
	2 nd	10	AC Circuits: Mathematical and phasor representation of alternating emf and current.
6th	1 st	11	Representation of AC values in phasor diagrams and its angle.
	2 nd	12	In-Phase, Out-Phase Phase relation of voltage and current.
7th	1 st	13	Star-Delta and Delta-star conversion with derivation.
	2 nd	14	Impedance and Impedance Triangle.
8th	1 st	15	CLASS TEST OF UNIT (I &II)
	2 nd	16	A.C in R-circuit,L-circuit and C-circuit with phasor
9th	1 st	17	Power triangle, power factor, concept of real ,reactive and apparent power with units.
	2 nd	18	Introduction to DC Machines, Fleming's Left-Hand Rule and Right-Hand Rule Construction of DC Machines
10th	1 st	19	Working Principle of DC Machines
	2 nd	20	EMF Equation of DC Machines and Applications
11th	1 st	21	Introduction to Transformers : Construction and Working Principle
	2 nd	22	Types of Transformers and Their Principles
12th	1 st	23	EMF Equation of Single-Phase Transformer
	2 nd	24	Transformation Ratio, Numerical Problems, Revision
13th	1 st	25	Introduction to Measuring Instruments
	2 nd	26	Types of Torques in Measuring Instruments (Concept Only)

14 th	1 st	27	PMMC Instruments :Construction ,Working Principle and Applications
	2 nd	28	Moving Iron (MI) Instruments:Construction,Working Principle and Applications
15 th	1 st	29	1 Phase Ammeter, Voltmeter, Wattmeter and Energy Meter with Connection Diagrams
	2 nd	30	Domestic Electrical Wiring (Concept Only)
16 th	1 st	31	Energy Consumption and Power Billing in small electric installation
	2 nd	32	CLASS TEST OF UNIT (III & IV)
17 th	1 st	33	Introduction to Basic Electronics & Passive Components (Resistance,Capacitor,Inductor)
	2 nd	34	Capacitors & Inductors
18 th	1 st	35	Energy Bands & Semiconductor Materials
	2 nd	36	Diodes: PN Junction & LED
19 th	1 st	37	Zener Diode & Applications
	2 nd	38	Transistors: BJT, FET,
20 th	1 st	39	MOS & CMOS
	2 nd	40	Introduction to Signals :DC & AC, Voltage & Current
21 st	1 st	41	Periodic & Non-Periodic Signals, Waveforms, Average, RMS & Peak Values
	2 nd	42	Analog & Digital Signals ; Voltage & current Sources
22 nd	1 st	43	Diode as Half-Wave Rectifier
	2 nd	44	Full-Wave Rectifiers (Centre-Tapped & Bridge Rectifier)
23 rd	1 st	45	Introduction to Clippers & Clampers (Definitions Only)
	2 nd	46	Transistor (BJT) as an Amplifier, RC Coupled Amplifier, Oscillators
24 th	1 st	47	CLASS TEST OF UNIT (V & VI)
	2 nd	48	Introduction to Integrated Circuits (ICs)
25 th	1 st	49	Advantages ,Uses and Types of ICs
	2 nd	50	741 Operational Amplifier– Pin Configuration
26 th	1 st	51	Characteristics of Ideal Operational Amplifier
	2 nd	52	Open-Loop and Closed-Loop Configurations
27 th	1 st	53	Op-Amp as an Adder (Summing Amplifier)
	2 nd	54	Op-Amp as Differentiator and Integrator
28 th	1 st	55	Revision, Applications and Unit Evaluation
	2 nd	56	Introduction to Digital Electronics & Number Systems and identify Decimal, Binary, Octal, and Hexadecimal number systems.
29 th	1 st	57	Number System Conversions and convert numbers between Decimal, Binary, Octal, and Hexadecimal systems
	2 nd	58	Simple Problems on Number Systems & Binary Arithmetic and involving binary addition, subtraction and conversions.
30 th	1 st	59	Introduction to Logic Gates & identify basic logic gates (AND, OR, NOT, NAND,NOR, XOR, XNOR), draw circuit symbols, and construct truth tables.
	2 nd	60	Universal Logic Gates (NAND & NOR Gates)
31 st	1 st	61	De Morgan's Laws using them to simplify Boolean expressions.
	2 nd	62	Implementation of Boolean Expressions Using Logic gates and draw logic gates
32 nd	1 st	63	Revision, Practice & Unit Test concepts of number systems and logic gates and demonstrate understanding through assessment.
	2 nd	64	CLASS TEST OF UNIT (N VII & VIII)