

LESSON PLAN

NAME OF THE FACULTY: - Maya **DISCIPLINE:** - EE

SEMESTER:- 1st

SUBJECT—Principles of Electrical Engineering

Lesson Plan Duration:- 15 weeks (11/10/2022 to 27/01/23)

Work Load (Lecture/Practical) per week (In hours): Lecture- 03, Practical -04

Week	Theory		Practical	
	Lecture Day	Topic (Including assignment/test)	Practical	Topic
1 st	1 st	Nature of Electricity, Charge, free electrons, Electric potential and potential difference, Electric current, Electrical Energy, Electrical power and their unit	1 st	Familiarization of basic components/equipment like ammeter, voltmeter, watt meter, resistance, capacitor, inductor, energy meter, power factor meter, CRO, multi-meter etc and their operation, uses ..
	2 nd	Resistance: Definition, Unit, Laws of resistance, conductivity and resistivity, Effect of temperature on resistance		
	3 rd	Temperature coefficient of resistance, Types of resistance & their applications, Color coding of resistance.		
2 nd	4 th	Rating and wattages of Electrical appliances, heating effect of Electrical current.	1 st	Familiarization of basic components/equipment like ammeter, voltmeter, watt meter, resistance, capacitor, inductor, energy meter, power factor meter, CRO, multi-meter etc and their operation, uses ..
	5 th	Introduction to Capacitors, capacitance, Variable capacitor, Factors affecting capacitance of a capacitor		
	6 th	Capacitance of parallel plate capacitor		
3 rd	7 th	Grouping of capacitors: capacitors in series, parallel, series-parallel	2 nd	Determine the value of resistance using colour coding method
	8 th	Energy stored in capacitor, Charging and discharging of a capacitor.		
	9 th	Ohm's law with practical implementation. Definition of DC circuit, types of DC circuits: series circuit, parallel circuit, seriesparallel circuit		
4 th	10 th	Concept of voltage source & current source, connections and their conversions.		
	11 th	Wheatstone Bridge. Kirchhoff's Laws-KVL and KCL		
	12 th	Star – Delta connections and their conversion.		
5 th	13 th	Revision of unit 2nd and problems to be discussed.	4 th	Observation of change in resistance of a bulb in hot and cold

	14 th	Concepts of Electrostatics, Coulomb's law		conditions, using voltmeter and ammeter
	15 th	Concept of magnetism, Magnetic field, Magnetic lines of force		
6 th	16 th	Magnetic field due to circular coil, solenoid,	5 th	Verification of laws of capacitors in series and parallel.
	17 th	Force between two parallel current carrying conductors. Analogy between electric		
		and magnetic circuit. Definition of Magnetic circuit, terms related to magnetic circuits:		
	18 th	magneto-motive force (MMF), flux, magnetic flux density, reluctance, permeability, field intensity, relation between magnetic flux density, permeability, field intensity		
7 th	19 th	Revision of unit 3 rd and problems to be discussed.	6 th	To verify ohm's law by drawing a graph between voltage and current.
	20 th	Determination of Ampere Turns, Series & parallel magnetic circuits,		
	21	Concept of magnetic leakage, useful flux & Air Gap.		
8 th	22	Magnetic curve (B-H curve) - cause of Hysteresis, Hysteresis loss, significance of Hysteresis loss, magnetic hysteresis loop for hard and soft magnetic materials.	Internal viva for the conducted 6 practicals	
	23	Faraday's laws of electro-magnetic induction.		
	24	Direction of Induced emf and current: Lenz's law, Fleming's right Hand rule		
9 th	25	E.M.F induced in a conductor: Dynamically induced emf, Statically induced emf: Self-induced emf and Mutual induced emf,	7 th ,8 th	Verification of Kirchhoff's Current Law in a dc circuit.
	26	Expression for self-inductance, mutual inductance.		
	27	Energy stored in an Inductor, Eddy currents, Eddy current losses.		
10 th	28	Revision of unit 4 th and problems to be discussed.	8 th	Verification of Kirchhoff's Voltage /current Laws in a dc circuit.
	29	Electrolysis, Faraday's law of electrolysis, important terms related to electrolysis, electroplating.		

	30	Concept of Cell: definition, emf of cell, internal resistance of cell, terminal potential of cell,		
11 th	31	types of cell (primary and secondary cell), grouping of cell (series grouping, parallel grouping, series-parallel	Internal viva for the conducted 8 practicals	
	32	Concept of Battery: Definition, types of battery like Lead-Acid, Lithium ion batteries with their Construction, working principle and applications.		
	33	Nickel-Cadmium, Lithium ion batteries with their Construction, working principle and applications.		
12 th	34	Condition for minimum distortion and minimum attenuation of signal on-the-line	9th,10th	Measurement of current and voltage in series/parallel resistive circuit.
	35	Charging methods of storage battery and charging indications.		
	36	Characteristics of battery: voltage, capacity, efficiency		
13 th	37	Care and maintenance of battery	Internal viva for the conducted 10 practicals	
	38	Introduction to Standing wave Ratio		
	39	Introduction to maintenance free batteries.		
14 th	40	Disposal of batteries.	11th	To find the ratio of inductance of a coil having air-core and iron-core respectively and to observe the effect of introduction of a magnetic core on coil inductance.
	41	Revision of unit 5th and problems to be discussed.		
	42	Rapid Revision of whole syllabus		
15 th	43	Rapid Revision of whole syllabus	12th	Demonstration of parts of a battery and find the specific gravity of battery.
	44	Rapid Revision of whole syllabus		
	45	Rapid Revision of whole syllabus		