SYNERGY SCHOOL OF ENGINEERING, DHENKANAL LESSION PLAN - 2024

Discipline: ELECTRICAL ENGG.	Semester: 4th Sem		Name of the Teaching Faculty: SUNANDITA SAHOO	
Subject: EM&I	No. of Days / per week class allotted: 05		Semester From date: 16.01.2024 To Date: 26.04.2024	
MONTH	Week	Day	Unit	Topics
JANUARY	3rd		UNIT-1	1. MEASURING INSTRUMENTS
		1ST		Define Accuracy, precision, Errors, Resolutions Sensitivity and tolerance.
		2ND		Classification of measuring instruments
		4TH		Explain Deflecting, controlling and damping arrangements in indicating type of instruments.
		5TH		Calibration of instruments.
		6TH	UNIT-2	2. ANALOG AMMETERS AND VOLTMETERS
				Describe Construction, principle of operation, errors, ranges merits and demerits of: Moving iron type instruments.
	4TH	1ST		Permanent Magnet Moving coil type instruments.
		4TH		Dynamometer type instruments
	5th	1ST		Rectifier type instruments
		2ND		Induction type instruments
FEBRUARY	1ST	4TH		Extend the range of instruments by use of shunts and Multipliers.
		5TH		Solve Numerical
		6TH	UNIT-3	3. WATTMETERS AND MEASUREMENT OF POWER
				Describe Construction, principle of working of Dynamometer type wattmeter. (LPF and UPF type)
	2ND	1ST		The Errors in Dynamometer type wattmeter and methods of their correction.
		2ND		Discuss Induction type watt meters.
		4TH	UNIT-4	4. ENERGYMETERS AND MEASUREMENT OF ENERGY
				Introduction
		5TH		Single Phase Induction Type Energy meters – construction
		6TH		working principle and their compensation & adjustments.
	3rd	1ST		Testing of Energy Meters
		2ND	UNIT-5	5. MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR
				Tachometers, types and working principles
		4TH		Principle of operation and construction of Mechanical and Electrical resonance Type frequency meters.
		5TH		
		6TH		Principle of operation and working of Dynamometer type single phase and three phase power factor meters.
	4TH	1ST		
		2ND		CLASS TEST-1
		4TH		6. MEASUREMENT OF RESISTANCE, INDUCTANCE& CAPACITANCE
		5TH		Classification of resistance
		6TH		Measurement of low resistance by potentiometer method.

	5TH	1ST	UNIT-6	Measurement of medium resistance by wheat Stone bridge method	
		2ND		Measurement of high resistance by loss of charge method.	
		4TH		Construction, principle of operations of Megger.	
MARCH	1ST	5TH		Question Discussion	
		6TH		Construction, principle of operations of Earth tester for insulation resistance.	
	2ND	1ST		Construction, principle of operations of earth resistance measurement.	
		4TH		Construction and principles of Multimeter Analog	
	3rd	1ST		Construction and principles of Multimeter Digital	
		2ND		Measurement of inductance by Maxwell's Bridge method.	
		4TH		Measurement of capacitance by Schering Bridge method	
		5TH	UNIT-7	**7. SENSORS AND TRANSDUCER**	
		6TH		Define Transducer, sensing element or detector element and transduction elements.	
	4TH	1ST		Classify transducer. Give examples of various class of transducer.	
		2ND		Linear and angular motion potentiometer.	
		4TH		Thermistor and Resistance thermometers.	
		6TH		Wire Resistance Strain Gauges	
	5TH	4TH		Inductive Transducer- Principle of linear variable differential Transformer (LVDT)	
		6TH		Uses of LVDT.	
APRIL	1ST	2ND		Capacitive Transducer. General principle of capacitive transducer. Variable area capacitive transducer.	
		4TH		Change in distance between plate capacitive transducer.	
		5TH		Piezo electric Transducer with their applications.	
		6TH		Hall Effect Transducer with their applications.	
	2ND	1ST		Question Discussion	
		2ND	UNIT-8	Principle of operation of Cathode Ray Tube. **8. OSCILLOSCOPE**	
		5TH		Principle of operation of Oscilloscope (with help of block diagram).	
	3rd	1ST		Measurement of DC Voltage	
		2ND		Measurement of DC Current.	
		4TH		Measurement of AC Voltage.	
		5TH		Measurement of AC Current.	
		6TH		Measurement of AC Phase.	
				Measurement of AC frequency.	

14.01.2024
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