Lesson Plan

Sl. No.	Discipline:Electrical Engineering	Semester-4th Summer 2024	Name of the Teachng Faculty: Sri Smruti Ranjan Mohanty
	Subject-ELECTRICAL MEASUREMENT & INSTRUMENTATION	No. Of Days/Week class alloted:05	Semester From date: 16.01.2024 To date: 26.04.2024. No of weeks: 15
	Weeks/Months	Class Day	Topic
1	1st Week	1st	1.1 Define Accuracy, precision, Errors, Resolutions Sensitivity and tolerance.
		2nd	1.2 Classification of measuring instruments.
		3rd	1.3 Explain Deflecting, controlling and damping arrangements in indicating type of instruments
		4th	1.4 Calibration of instruments.
		5th	2.1 Describe Construction, principle of operation, errors, ranges merits and demerits of
2	2nd Week	1st	2.1.1 Moving iron type instruments.
		2nd	2.1.2 Permanent Magnet Moving coil type instruments.
		3rd	2.1.3 Dynamometer type instruments
		4th	2.1.4 Rectifier type instruments
		5th	2.1.5 Induction type instruments
3	3rd Week	1st	2.2 Extend the range of instruments by use of shunts and Multipliers.
		2nd	2.3 Solve Numerical
		3rd	2.3 Solve Numerical
		4th	3.1 Describe Construction, principle of working of Dynamometer type wattmeter. (LPF and UPF type)
		5th	3.1 Describe Construction, principle of working of Dynamometer type wattmeter. (LPF and UPF type)
4	4th Week	1st	3.2 The Errors in Dynamometer type wattmeter and methods of their correction.
		2nd	3.2 The Errors in Dynamometer type wattmeter and methods of their correction.
		3rd	3.3 Discuss Induction type watt meters.
		4th	4.1 Introduction
		5th	4.2 Single Phase Induction type Energy meters – construction, working principle and their compensation & adjustments.
5	5th Week	1st	4.2 Single Phase Induction type Energy meters – construction, working principle and their compensation & adjustments.
		2nd	4.3 Testing of Energy Meters.
		3rd	5.1 Tachometers, types and working principles.
		4th	5.1 Tachometers, types and working principles.
		5th	5.2 Principle of operation and construction of Mechanical and Electrical resonance Type frequency meters.
6	6th Week	1st	5.2 Principle of operation and construction of Mechanical and Electrical resonance Type frequency meters.
		2nd	5.3 Principle of operation and working of Dynamometer type single phase and three phase power factor meters.
		3rd	5.3 Principle of operation and working of Dynamometer type single phase and three phase power factor meters.
		4th	6.1 Classification of resistance
		5th	6.1..1. Measurement of low resistance by potentiometer method.

7	7th Week	1st	6.1..2. Measurement of medium resistance by wheat Stone bridge method.
		2nd	6.1..3. Measurement of high resistance by loss of charge method.
		3rd	6.2 Construction, principle of operations of Megger & Earth tester for insulation resistance and earth resistance measurement respectively.
		4th	6.2 Construction, principle of operations of Megger & Earth tester for insulation resistance and earth resistance measurement respectively.
		5th	6.3 Construction and principles of Multimeter. (Analog and Digital)
8	8th Week	1st	6.3 Construction and principles of Multimeter. (Analog and Digital)
		2nd	6.4 Measurement of inductance by Maxewell's Bridge method.
		3rd	6.5 Measurement of capacitance by Schering Bridge method.
		4th	7.1 Define Transducer, sensing element or detector element and transduction elements.
		5th	7.1 Define Transducer, sensing element or detector element and transduction elements.
9	9th Week	1st	7.2 Classify transducer. Give examples of various class of transducer.
		2nd	7.2 Classify transducer. Give examples of various class of transducer.
		3rd	7.3 Resistive transducer
		4th	7.3.1 Linear and angular motion potentiometer.
		5th	7.3.1 Linear and angular motion potentiometer.
10	10th Week	1st	7.3.2 Thermistor and Resistance thermometers.
		2nd	7.3.2 Thermistor and Resistance thermometers.
		3rd	7.3.3 Wire Resistance Strain Gauges
		4th	7.4 Inductive Transducer
		5th	7.4.1 Principle of linear variable differential Transformer (LVDT)
11	11th Week	1st	7.4.2 Uses of LVDT.
		2nd	7.5 Capacitive Transducer.
		3rd	7.5.1 General principle of capacitive transducer.
		4th	7.5.2 Variable area capacitive transducer.
		5th	7.5.3 Change in distance between plate capacitive transducer.
12	12th Week	1st	7.6 Piezo electric Transducer and Hall Effect Transducer with their applications.
		2nd	7.6 Piezo electric Transducer and Hall Effect Transducer with their applications.
		3rd	8.1. Principle of operation of Cathode Ray Tube.
		4th	8.2. Principle of operation of Oscilloscope (with help of block diagram).
		5th	8.2. Principle of operation of Oscilloscope (with help of block diagram).
13	13th Week	1st	8.3. Measurement of DC Voltage & current.
		2nd	8.4. Measurement of AC Voltage, current, phase & frequency.
		3rd	8.4. Measurement of AC Voltage, current, phase & frequency.
		4th	Problem Solve
		5th	Problem Solve

16/1/24
Sr. Lect. (Elect)