LESSON PLAN

Session (2022-2023)

Discipline: Electronics and Telecommunication.	**Semester:** 3RD, Winter/2022	**Name of the Teaching Faculty:** Abhiram Pradhan Lecturer **Email ID:** abhiramfet@kp.kiit.ac.in
Subject: **Electronics Instrumentation and Measurement Theory-4**	**No. of Days/Week:** 04	**Start Date:** 14/09/2022 **End Date:** 21/01/2023

Week	Class Day	Theory Topics
1st	1st	Discuss the Static Characteristics, Accuracy,
	2nd	Describe sensitivity, reproducibility & static error of instruments.
	3rd	Dynamic characteristics & speed of instruments.
	4th	Errors of an instrument & explain various types.
2nd	1st	Introduction to Indicator & Display devices & its types.
	2nd	Basic principle of meter movement, permanent magnetic moving coil movement & its advantages & disadvantages.
	3rd	Operation of Moving Iron Instrument.
	4th	Basic principle of operation of DC Ammeter and Multi range Ammeter.
3rd	1st	Basic principle of operation of AC Ammeter and Multi range Ammeter.
	2nd	Basic principle of operation of DC Voltmeter and its applications.
	3rd	Basic principle of operation of AC Voltmeter and its application.
	4th	Basic principle of Ohm Meter (Series & Shunt type).
4th	1st	**Doubt clearing class.**

	2nd	Basic principle of Analog Multimeter, its types & applications.
	3rd	Operation of Q meter and its essentials.
	4th	CLASS TEST, DOUBT CLEARING CLASS.
5th	1st	Principle of operation of Ramp type Digital Voltmeter & applications,
	2nd	Operation of display of 3 1/2, 4 1/2– Digital Multimeter & Resolution and Sensitivity.
	3rd	Basic principle of operation of working of Digital Multimeter.
	4th	Digital Multimeter, types & applications. Basic principle of operation of working of Digital Frequency Meter.
6th	1st	Operation of working of Digital Measurement of Time. Measurement of Frequency.
	2nd	Principle of operation of working of Digital Tachometer. Principle of operation of working of Automation in Digital Instruments
	3rd	Polarity Indication, Ranging, Zeroing & Fully Automatic. Block diagram of LCR meter & it's working principle.
	4th	Basic principle of Oscilloscope& its Block Diagram.
7th	1st	Basic principle & Block diagram of CRO, Dual Trace Oscilloscope & its specification.
	2nd	CRO Measurements, Lissajous figures.
	3rd	Applications of Oscilloscope (Voltage period & frequency measurement).
	4th	Operation of Digital Storage Oscilloscope & High frequency Oscilloscope.
8th	1st	CLASS TEST. DOUBT CLEARING CLASS.
	2nd	Recursive & non-recursive discrete time system.
	3rd	Determine the impulse response of linear time invariant recursive system.
	4th	Correlation of Discrete Time signals.
9th	1st	**Doubt clearing class.**
	2nd	DC Bridges (Measurement of Resistance by Wheatstone's Bridge).
	3rd	AC bridges (Measurement of inductance by Maxwell's Bridge & by Hay's Bridge).

	4th	Measurement of capacitance by Schering's Bridge &
10th	1st	Measurement of capacitance by DeSauty'S Bridge.
	2nd	Working principle of Q meter its circuit diagram & measurement of Low impedance.
	3rd	LCR Meter & it's measurements.
	4th	Parameters and method of Selecting Transducer.
11th	1st	Advantage of Electrical Transducer & Resistive Transducer.
	2nd	Define Strain Gauge (No mathematical Derivation).
	3rd	Working principle of LVDT.
	4th	Working principle of capacitive transducers (pressure).
12th	1st	Working principle of Load Cell (Pressure Cell).
	2nd	Working principle of Temperature Transducer (RTD)
	3rd	Working principle of Current transducer and KW Transducer.
	4th	Working principle of Proximity & Light sensors.
13th	1st	Optical Pyrometer, Thermocouple, Thermistor.
	2nd	General aspect & classification of Signal generators.
	3rd	Working principle of AF Sine & Square wave generator.
	4th	Working principle of the Function Generator.
14th	1st	Function of basic Wave Analyzer & Spectrum Analyzer.
	2nd	Basic concept of Data Acquisition System (DAS).
	3rd	Class Test.
	4th	**Doubt clearing class.**