

LESSON PLAN (Winter-2023)

Discipline: ETC	Semester: 3rd	
Subject: Electronics Meas. & Inst.	No of Days /per week class allotted: 4	No of Weeks:15
Week	Class Day	Theory Topics
1st	1st	Unit-1: Qualities of Measurement(05) 1.1 Discuss the Static Characteristics,
	2nd	1.2 Accuracy, sensitivity, reproducibility
	3rd	static error of instruments
	4th	1.3 Dynamic characteristics& speed of instruments.
2nd	1st	1-4 Errors of an instrument & explain various types.
	2nd	Unit-2: Indicating Instruments (10) 2.1 Introduction to Indicator & Display devices & its types
	3rd	2.2 Basic principle of meter movement, permanent magnetic moving coil movement & its advantages & disadvantages.
	4th	2.3 Operation of Moving Iron Instrument
3rd	1st	2.4 Basic principle of operation of DC Ammeter and Multi range Ammeter
	2nd	2.5 Basic principle of operation of AC Ammeter and Multi range Ammeter
	3rd	2-6 Basic principle of operation of DC Voltmeter and its applications
	4th	2.7 Basic principle of operation of AC Voltmeter and its application
4th	1st	2.8 Basic principle of Ohm Meter (Series & Shunt type)
	2nd	2.9 Basic principle of Analog Multimeter, its types & applications
	3rd	2-10 Operation of Q meter and its essentials
	4th	Unit-3: Digital Instruments(10) 3.1 Principle of operation of Ramp type Digital Voltmeter & applications
5th	1st	3.2 Operation of display of $3\frac{1}{2}$, $4\frac{1}{2}$ – Digital Multimeter & Resolution and Sensitivity
	2nd	3.3 Basic principle of operation of working of Digital Multimeterits types & applications
	3rd	3.4 Basic principle of operation of working of Digital Frequency Meter
	4th	3.5 Operation of working of Digital Measurement of Time
6th	1st	3.6 Measurement of Frequency.
	2nd	3.7 Principle of operation of working of Digital Tachometer
	3rd	3.8 Principle of operation of working of Automation in Digital Instruments
	4th	(Polarity Indication, Ranging, Zeroing & Fully Automatic)
7th	1st	3.9 Block diagram of LCR meter & its working principle.
	2nd	Unit-4: Oscilloscope(08) 4.1 Basic principle of Oscilloscope& its Block Diagram
	3rd	4.2 Basic principle & Block diagram of CRO,
	4th	Dual Trace Oscilloscope & its specification
	1st	4.3 CRO Measurements,

8th	2nd	Lissajous figures
	3rd	4.4 Applications of Oscilloscope (Voltage period & frequency measurement)
	4th	4.5 Operation of Digital Storage Oscilloscope
9th	1st	& High frequency Oscilloscope
	2nd	Unit-5: Bridges (11) 5.1 Types of Bridges (DC& Ac Bridges)
	3rd	5.2 DC Bridges (Measurement of Resistance by Wheatstone's Br
	4th	5.3 AC bridges (Measurement of inductance by Maxwell's Bridg
10th	1st	& by Hay's Bridge)
	2nd	5.4 Measurement of capacitance by Schering's Bridge
	3rd	& DeSauty Bridge.
	4th	5.5 Working principle of Q meter its circuit diagram
11th	1st	& measurement of Low impedance 5.6 Measurement of frequency
	2nd	5.7 LCR Meter & its measurements
	3rd	Unit-6: Transducers & Sensors(11) 6.1 Parameter, method of Selecting & advantage of Electrical Transducer & Resistive Transducer
	4th	6.2 Working principle of Strain Gauges, define Strain Gauge (No mathematical Derivation)
12th	1st	6.3 Working principle of LVDT
	2nd	6.4 Working principle of capacitive transducers (pressure)
	3rd	6.5 Working principle of Load Cell (Pressure Cell)
	4th	6.6 Working principle of Temperature Transducer - RTD
13th	1st	Optical Pyrometer,
	2nd	Thermocouple
	3rd	Working principle of Thermister
	4th	6.7 Working principle of Current transducer and KW Transducer
14th	1st	continue
	2nd	6.8 Working principle of Proximity & Light sensors.
	3rd	Unit-7: Signal Generator, Wave Analyser & DAS (05) 7.1 General aspect & classification of Signal generators
	4th	7.2 Working principle of AF Sine & Square wave generator
15th	1st	continue
	2nd	7.3 Working principle of the Function Generator
	3rd	7.4 Function of basic Wave Analyser& Spectrum Analyser
	4th	7.5 Basic concept of Data Acquisition System (DAS)