

**LESSON PLAN**

**JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA**

Name of the Faculty: Yasobanti Nayak	Academic Year: 2022-23
Course No.: TH4	Course name: Electronics Measurement & Instrument
Programme: Diploma	Branch: E&TC
Year/ Sem: 2 <sup>nd</sup> /3 <sup>rd</sup>	Section:

Sl. No.	Period	Time (min)	Unit	Topic to be Covered	Teaching Method
1.	1.	55 min	1	What is measurement? Know about the qualities of measurement	Black board
2.	2.	55min	1	Explain the static characteristics of measurement	Black board
3.	3.	55min	1	Define accuracy, sensitivity, reproducibility & static error of instruments	Black board
4.	4.	55min	1	Explain the dynamic characteristics & speed of instruments	Black board
5.	5.	55min	1	Define errors of an instrument & explain various types	Black board
6.	6.	55min	2	Introduction to Indicator & Display Devices & its types	Black board
7.	7.	55min	2	Explain basic principle of meter movement, PMMC & its advantage & disadvantage	Black board
8.	8.	55min	2	Explain operation of moving iron instrument	Black board
9.	9.	55min	2	Explain basic principle of operation DC Ammeter and Multi range Ammeter	Black board
10	10.	55min	2	Explain basic principle of operation AC Ammeter and Multi range Ammeter	Black board
11	11.	55 min	2	Explain basic principle of operation DC Voltmeter and its application	Black board
12	12.	55 min	2	Explain basic principle of Ohm Meter (Series & Shunt type)	Black board
13	13.	55min	2	Explain basic principle of Analog Multimeter, its types & applications	Black board
14	14.	55 min	2	Explain operation of Q meter & its essentials	Black board
15	15.	55 min	3	What is Digital instruments	Black board
16	16.	55min	3	Explain principle of operation of Ramp type Digital Voltmeter & application	Black board
17	17.	55min	3	Operation of display 3 ½, 4 ½-Digital Multimeter & Resolution and sensitivity	Black board
18	18.	55 min	3	Explain basic principle of operation of working of Digital Multimeters types & application	Black board
19	19.	55 min	3	Explain basic principle of operation of working of Digital Frequency Meter	Black board
20	20.	55 min	3	Explain operation of working Digital Measurement of Time	Black board
21	21.	55 min	3	Measurement of Frequency	Black board
22	22.	55min	3	Explain principle of operation of working of Digital Tachometer	Black board
23	23.	55min	3	Explain principle of operation of working of Automation in	Black board

				Digital Instruments (Polarity Indication,Ranging,Zeroing )	
24	24.	55 min	4	Explain basic principle of Oscilloscope and its block diagram	Demonstration
25	25.	55 min	4	Explain basic principle & block diagram OF CRT & CRO	Projector
26	26.	55 min	4	Explain basic principle & block diagram of Dual Trace Oscilloscope and its specification	Projector
27	27.	55 min	4	CRO Measurement ,Lissajous figures	Black board
28	28.	55 min	4	Application of Oscilloscope (Voltage period & frequency measurement)	Projector
29	29.	55 min	4	Operation of Digital Storage Oscilloscope & High frequency Oscilloscope	Black board
30	30.	55 min	4	Assignment & Revision	Black board
31	31.	55 min	4	Assignment & Revision	Black board
32	32.	55 min	5	Introduction to Bridge	Black board
33	33.	55 min	5	Types of bridges (DC & AC Bridge)	Black board
34	34.	55 min	5	DC Bridge (Measurement of Resistance by Wheatstone's Bridge)	Black board
35	35.	55 min	5	AC Bridge (Measurement of Resistance by Maxwell's Bridge & by Hay's Bridge)	Black board
36	36.	55 min	5	Measurement of Capacitance by Schering's Bridge & DeSauty Bridge	Black board
37	37.	55 min	5	Assignment & Revision	Black board
38	38.	55 min	5	Assignment & Revision	Black board
39	39.	55 min	5	Working principle of Q meter its circuit diagram & low impedance	Black board
40	40.	55 min	5	Measurement of frequency	Black board
41	41.	55 min	5	LCR Meter & its measurement	Black board
42	42.	55 min	5	Assignment & Revision	Black board
43	43.	55 min	6	Introduction to Transducers	Black board
44	44.	55 min	6	Parameter, method of selecting & advantage of Electrical Transducer	Black board
45	45.	55 min	6	Resistive Transducer	Black board
46	46.	55 min	6	Define strain Gauge & working principle of Strain Gauges	Black board
47	47.	55 min	6	Assignment and Revision	Black board
48	48.	55 min	6	Working principle of LVDT	Black board
49	49.	55 min	6	Working principle of Load Cell (Pressure cell)	Black board
50	50.	55 min	6	Assignment and Revision	Black board
51	51.	55 min	6	Working principle of Temperature Transducer (RTD,Optical Pyrometer)	Black board
52	52.	55 min	6	Working principle of Themocouple,Thermister	Black board
53	53.	55 min	6	Working principle of Current transducer and KW Transducer	Black board
54	54.	55 min	6	Working principle of Proximity & Light sensors	Black board

55	55.	55 min	6	Assignment and Revision	Black board
56	56.	55 min	7	General aspect & classification of Signal generator	Black board
57	57.	55 min	7	Working Principle of AF Sine & Square wave generator	Black board
58	58.	55 min	7	Working Principle of the function generator	Black board
59	59.	55 min	7	Function of basic Wave Analyser & Spectrum Analyser	Black board
60	60.	55 min	7	Basic concept of Data Acquisition System (DAS) & Revision	Black board