

Lesson Plan

Name of Faculty : Rajesh Kumar
Discipline : Electronics & Comm. Engg.
Semester : 3rd
Subject : ELECTRONIC INSTRUMENTS AND MEASUREMENT

Lesson Plan Duration : 16 weeks

Work load (Lecture /Practical) per week (in hours): Lectures—03, Practical—03

Week	Theory		Practical	
	Lecture Day	Topic (Including Assignment/ Test)	Practical Day	Topic
1 st	1	Measurement, method of measurement, types of instruments	1 st	Measurement of voltage, resistance, frequency using digital multimeter
	2	Specifications of instruments Accuracy, precision		
	3	Specifications of instruments sensitivity, resolution, range, errors in measurement		
2 nd	4	sources of errors, limiting errors,	2 nd	Measurement of voltage, resistance, frequency using digital multimeter
	5	loading effect, importance and applications of standards and calibration		
	6	Assignment / test		
3 rd	7	Principles of measurement of DC voltage	3 rd	Measurement of voltage, frequency, time period and phase using CRO
	8	Principles of measurement of DC current		
	9	Principles of measurement of AC voltage		
4 th	10	Principles of measurement of AC current	4 th	Measurement of voltage, frequency, time period and phase using CRO
	11	Principles of operation and construction of permanent magnet moving coil (PMMC) instruments		
	12	Moving iron type instruments		
5 th	13	Assignment	5 th	Practical file Checking and viva-voice
	14	Revision / test		
	15	Construction and working of Cathode Ray Tube(CRT)		
6 th	16	Block diagram description of a basic CRO and triggered sweep oscilloscope	6 th	Measurement of voltage, frequency, time and phase using DSO
	17	Front panel controls		
	18	Specifications of CRO and their explanation		
7 th	19	Measurement of current, voltage, frequency	7 th	Measurement of voltage, frequency, time
	20	Measurement of current time period and		

		phase using CRO		and phase using DSO
	21	Digital storage oscilloscope (DSO) block diagram and working principle		
8 th	22	Assignment / Problem Taking	8 th	Measurement of Q of a coil
	23	Class test		
	24	Wheat stone bridge		
9 th	25	AC bridges: Maxwell's induction bridge	9 th	Measurement of Q of a coil
	26	Hay's bridge, De-Sauty's bridge,		
	27	Schering bridge and Anderson bridge		
10 th	28	Block diagram description of laboratory type RLC bridge, specifications of RLC bridge	10 th	Practical file Checking and viva-voice
	29	Block diagram and working principle of Q meter		
	30	Assignment		
11 th	31	Problem Taking	11 th	Measurement of resistance and inductance of coil using RLC Bridge
	32	Class test		
	33	Explanation of block diagram specifications of low frequency, RF generators		
12 th	34	pulse generator, function generator	12 th	Measurement of impedance using Maxwell Induction Bridge
	35	Distortion factor meter		
	36	Instrumentation amplifier: its characteristics, need and working		
13 th	37	Instrumentation amplifier need and working	13 th	To find the value of unknown resistance using Wheat Stone Bridge
	38	Assignment		
	39	Comparison of analog and digital instruments		
14 th	40	Working principle of ramp, dual slope	14 th	Measurement of distortion using Distortion Factor Meter
	41	Working principle of integration type digital voltmeter		
	42	Block diagram and working of a digital multi-meter		
15 th	43	Specifications of digital multi-meter and their applications	15 th	Use of logic pulser and logic probe
	44	Limitations of digital multi-meters		
	45	Working principle of logic probe, logic pulser analyzer		
16 th	46	Working principle of logic analyzer and signature analyzer	16 th	Revision
	47	Revision		
	48	Revision		