

**Maa Bhagwati Group of Institutions**  
**DIPLOMA IN ENGINEERING (POLYTECHNIC)**

**SUBJECT: : ELECTRICAL INSTRUMENTS AND MEASUREMENTS**

**ELECTRICAL ENGINEERING 2nd Year**

**LECTURE PLAN**

SR.NO.	TOPICS
1	Concept of measurement and instruments
2	Concept of measurement of electrical quantities and instruments for their measurements, sources of error.
3	Types of electrical measuring instruments – indicating, integrating and recording type instruments
4	Essentials of indicating instruments – deflecting, controlling and damping torque
5	Concept of ammeter and voltmeters and difference between them
6	<b>Construction and working principles of moving Iron and moving coil instruments</b>
7	Merits and demerits, sources of error and application of these instruments
8	Construction, working principle, merits and demerits of dynamometer type wattmeter, Digital wattmeters.
9	Induction Type: Construction, working principle, merits and demerits of singlephase and three-phase energy meters
10	Errors and their compensation
11	Simple numerical problems
12	Construction and working principle of maximum demand indicators
13	Digital energy meter (diagram, construction and application)
14	Construction, working principle and application of Meggar, Earth tester(analog and digital) Multimeter
15	Frequency meter (dynamometer type) single phase power factor meter (Electrodynamometer type)
16	Working principle of synchroscope and phase sequence indicator, tong tester (Clamp-on meter) 5.2 Instrument Transformers: Construction, working and applications
17	a) CT
18	b) PT
19	Cathode Ray Oscilloscope: Block diagram, working principle of CRO and its various controls. Applications of CRO.
20	Digital multi-meter (only block diagram) and Applications
21	Study of LCR meters and their applications
22	Two wattmeter method in balanced and unbalanced circuits and simple problems
23	Three wattmeter method
24	Introduction, Types of Transducers (1 phase,3 phase)
25	Basic concept of pressure measurement, flow measurement, level measurement, displacement measurement using transducers
26	Different types of thermometers, thermocouple, resistance temperature detector and their construction
27	principle and working. Thermal Imager Camera (Concept)
28	AMI (Advance Metering Infrastructure), Functions of AMI, cyber Security, Advantages

