

AMEE05 ELECTRICAL MEASUREMENT & MEASURING INSTRUMENTS

UNIT-1 PHILOSOPHY OF MEASUREMENT & ELECTRICAL QUANTITIES

- 1.1 Philosophy Of Measurement: Methods of Measurement,
- 1.2 Measurement System, Classification of instrument system,
- 1.3 Characteristics of instruments & measurement system,
- 1.4 Errors in measurement & its analysis, Standards.
- 1.5 Analog Measurement of Electrical Quantities : Electrodynamics,
- 1.6 Thermocouple, Electrostatic y& Rectifier type Ammeters & Voltmeters,
- 1.7 Electrodynamics Wattmeter, Three Phase Wattmeter,
- 1.8 Power in three phase system, errors & remedies in wattmeter and energy meter.

UNIT-2 TRANSFORMER

- 2.1 Instrument Transformer and their applications in the extension of instrument range,
- 2.2 Introduction to measurement of speed, frequency and power factor.

UNIT-3 MEASUREMENT OF PARAMETERS

- 3.1 Different methods of measuring low, medium and high resistances,
- 3.2 Measurement of inductance & capacitance with the help of AC Bridges, Q Meter.

UNIT-4 AC POTENTIOMETER & MAGNETIC MEASUREMENT

- 4.1 AC Potentiometer: Polar type & Co-ordinate type AC potentiometers,
- 4.2 Application of AC Potentiometers in electrical measurement
- 4.3 Magnetic Measurement: Ballistic Galvanometer, flux meter,
- 4.4 Determination of hysteresis loop, measurement of iron losses.

UNIT-5 DIGITAL MEASUREMENT OF ELECTRICAL QUANTITIES & CATHODE RAY OSCILLOSCOPE

- 5.1 Digital Measurement of Electrical Quantities:
- 5.2 Concept of digital measurement, block diagram Study of digital voltmeter,
- 5.3 Frequency meter Power Analyzer and Harmonics Analyzer; Electronic Multi-meter.
- 5.4 Cathode Ray Oscilloscope : Basic CRO circuit (Block Diagram),
- 5.5 Cathode ray tube (CRT) & its components,
- 5.6 Application of CRO in measurement,
- 5.7 Lissajous Pattern.; Dual Trace & Dual Beam Oscilloscopes.

Reference Books:

1. Forest K. Harries, "Electrical Measurement", Willey Eastern Pvt. Ltd. India.
2. M.B. Stout, "Basic Electrical Measurement" Prentice hall of India, India.
3. W.D. Cooper," Electronic Instrument & Measurement Technique "Prentice Hall International.