**Subject Code : P8AP6**

## CORE COURSE – VI - ELECTRICAL AND ELECTRONIC INSTRUMENTATION

### Unit I-Potentiometers

Introduction to potentiometers – Construction details of potentiometer – Standardization of Potentiometer – Cromptons Potentiometer – Multirange – Potentiometer – Vernier potentiometer – Applications of DC potentiometers – Self balancing potentiometer- AC Potentiometers – Standardization of AC potentiometer – Types of AC potentiometers – Dryscale potentiometer – Gall Tinsely Potentiometer – Applications of AC Potentiometer.

### Unit II- Galvanometer and Flux meter

Introduction to Galvanometer – Dynamic behavior of Ballistic Galvanometer – Theory and construction details of Moving coil type ballistic Galvanometer – Calibration of ballistic Galvanometer – Flux meter – Construction of flux meter- Advantages and disadvantages of flux meter.

### Unit III- Measurement of Power, Energy and Instrument transformers

Principle of Power Measurement – Dynamometer type wattmeter –principles of energy measurement - Induction type energy meter – Instrument transformers (IT) – uses of IT – ratio of IT – Current Transformer – Construction - Characteristics – Potential Transformer – Difference between CT and PT – Construction – Characteristics.

### Unit IV- Measurement of Resistance, Inductance and Capacitance

Resistance Measurement – Classification of Resistance – Measurement of Low resistance – Kelvin Double bridge – AC bridges – General equation for bridge balance – Measurement of self inductance by Maxwell's bridge – Hay's bridge – Owen's bridge – Measurement of capacitance – Desauty's bridge – Schering's bridge – Measurement of Mutual inductance by Heaviside bridge and Cambell's bridge – Anderson bridge.

### UNIT V- Basic Electronics Instrumentation

CRO – Construction – Deflection Schemes – Working details of CRO – Application of CRO – Signal Generators - Q Meter – Measurement methods – Wave analyzers – Frequency selective wave analyzer – Heterodyne wave Analyzer – Applications of wave analyzers – Spectrum analyzer.

### Book for study

1. A.K. Sawhney, A Course in Electrical and Electronic and Instrumentation, Dhanpat Rai and Sons, New Delhi, (2000). (Unit I, II, III, IV & V)

### Books for Reference

1. Dr. Sanjay, N. Talbar, Electronics and Instrumentation, Dhanpat Rai Publishing Company (P) Ltd., New Delhi, (2001).
2. David A. Bell, Electronic Instrumentation and Measurements – Prentice Hall of India Private Limited, New Delhi, (2003).