Subject Code : RCCSAP6

CC – VIII: ELECTRICAL AND ELECTRONIC INSTRUMENTATION

UNIT – I: BRIDGES

Principles of network theorems – Thevenin's and Norton's theorem – Bridges : Kelvin's double bridge – AC bridges – Maxwell, Owen, Schering and deSauty's bridges – Wien bridges.

UNIT – II: ELECTRONIC INSTRUMENTS – I

Amplified D.C. meter – Chopper stabilized amplifier – A.C. Voltmeter using rectifiers – Electronic multimeter – Differential voltmeter – Digital voltmeters – Component measuring instruments – Sources of error – Q meter – vector impedance meter – Vector voltmeter – R.F. power and voltage measurements.

UNIT – III: ELECTRONIC INSTRUMENTS – II

Signal conditioning systems – DC and AC carrier systems – Instrumentation amplifiers – Vibrating capacitor amplier – Analog to digital data and sampling – A/D and D/A convertor (successive approximation, ladder and dual slope conversions) – Simple programs of microprocessor based measuring system – Magnetic tape recorders – EM recording – Digital recording.

Unit IV – Recording Devices

Recorders necessity – Recording requirements – Analog recorders – Graphic recorders – strip chart recorders – Galvanometer types recorders – Null type recorders – Potentio metric recorders – Single and multipoint recorders – X-Y recorders – Magnetic tape recorders – Frequency modulated recorders and digital tape recorders.

Unit V – CRD

CRD – Construction and action – Bean transit time and frequency limitations – Measurement of potential, current, resistance, phase and frequency – Special purpose oscilloscopes – Sampling storage oscilloscope.

Books for Study

1. Electronic Instrumentation and Measurement techniques – W.D. Cooper and A.D. Helfrick – PHI – Third edn. – 1989

Books for Reference:

1. A course in electrical and electronic measurements and Instrumentation – A.K. Sawhmey – Dhanpat Rai and Sons – 1990.
2. Electronic measurements and instrumentation – Oliver Cage – Mc Graw Hill – 1975.