ELECTRONIC INSTRUMENTATION AND MEASUREMENT
Code : EI 602
Contacts : 3L+1T
Credits : 4

Module I
Building blocks of Electronic Instruments: Voltage controlled oscillators, Phase Locked Loop, Charge Amplifier, Programmable Gain Amplifier, Current Mirror, Voltage to frequency and frequency to voltage converters [6]

Analogue Electronic Instruments: Introduction, Basic Emitter Follower Voltmeter, Voltmeters with IC Operational Amplifiers, True R.M.S Voltmeter, Digital voltmeters, Q meter [5]

MODULE II
Current measurement with Analogue Electronic Instruments – Current-to-voltage converter type Electronic Ammeters, Chopper stabilized amplifiers for measurement of very low voltages and currents. [4]

Cathode ray oscilloscopes and its applications: Cathode Ray Tube, Deflection Amplifiers, Oscilloscope Time Base, Dual-Trace Oscilloscopes, Oscilloscope Controls, Oscilloscope Probes, Delayed time base oscilloscope, Digital Storage Oscilloscope. [6]

Module III
Digital instruments: Introduction, Basic Digital Displays – LEDs and LCD panels. Display Drivers and Latches, Time Base generation with Crystal Oscillators and Dividers. [4]

Design and Implementation of a simple Digital Frequency Meter, Errors in frequency measurement – possible remedies, Time and Ratio measurement. [4]

Module IV
Spectrum Analyzer [3]

Interference and Noises [4]

Introduction to Virtual Instrumentation [2]

Books:
1. Helfrick A.D. & Cooper W.D. : Modern Electronic Instrumentation & Measuring Instruments; Wheeler
2. Bell, David : Electronic Instrumentation & Measurement, Reston Publishers
3. D.C. Patranabis, Principles of Electronic Instrumentation, PHI
4. H.S. Kalsi, Electronic Instrumentation, Tata McGraw Hill
5. Wolf S., Student Reference Manual for Electronic Instrumentation Laboratories, Englewood Cliffs, Prentice Hall