DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
SYLLABUS FOR B.E. VI SEMESTER

ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

(for other Branches)

Instruction: 2 Hrs /week	SEE Marks : 70	Course Code :OE650EC
Credits : 2	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objective	Course Outcomes
1. To familiarize with various electronic instruments for measuring different parameters	**At the end of the course, students will be able to:** 1. Apply knowledge of instruments for effective use 2. Select suitable instruments for typical measurements. 3. Identify various transducers to measure strain, temperature and displacement. 4. Understand basic measurements using CRO.

UNIT - I

Measurement And Error: Sensitivity, Resolution, Accuracy and precision, absolute and Relative types of errors, Statistical analysis, Probability of and Limiting errors, Linearity.

UNIT - II

Instruments: D'Arsonval movement and basic principles of Measurement of Voltage, Current and Resistance in instruments. Analog and Digital Multimeters, Measurement of time and Frequency - Digital Frequency Meter and applications.

Special instruments: Wave Analyzer, Harmonic Distortion Analyzer, Spectrum Analyzer.

UNIT – III

Measurements: Kelvin Bridge; Maxwell, Hay and Shering Bridges, Q-meter

Transducers: strain, Load, force, Displacement, Velocity, Acceleration, Pressure and Temperature.

UNIT - IV

Oscilloscopes: Block diagram, probes, Deflection amplifier and delay line, Trigger Generator, Coupling, Automatic Time Base and Dual Trace Oscilloscopes, Pulse Measurements, Delayed Time Base, Analog Storage, Sampling and Digital Storage Oscilloscopes.

Suggested Reading:

1. Oliver and Cage, Electronic Measurements and Instrumentation, McGraw Hill, 2009.
2. Helfrick Albert D. and Cooper William D., Electronic Instrumentation & Measurement Techniques, PHI, 2008.
3. D.A. Bell, Electronic Instrumentation and Measurements, Third Edition, Oxford, 2013.