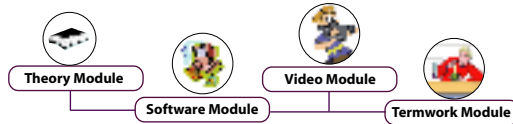


Electronic Measuring Instruments

Introduces, Global e-Learning System in Education & Training in the form of Learning Resources with Computer Aided Instructions



System Requirement:- IBM-PC Compatible Min P-III with Window-OS, 128 MB RAM/Multimedia Kit

Theory module

Features : Theory, Figures, Photographs, Animations With Controller, Highlighter Tool, Note Creation Facility, Systematic Page Navigation, Printing Facility.

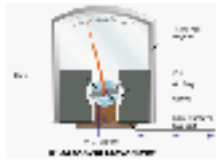
List of Topics

Fundamentals

Concept of Instrument, Accuracy, Precision, Sensitivity, Linearity, Methods of Measurement, Direct & Indirect Both, Errors, Gross, Systematic & Random, Concepts of Standards, International, Primary, Secondary and Working, Grounding, Shielding & Isolation Concept.

Units of Measurement & Instruments

Units of Measurement Fundamental, Supplementary & Derived Unit, Quantity, Symbol, Dimension, Unit, Unit Symbol of Current, Temperature, Intensity Frequency, Velocity, Angular Velocity, Acceleration, Angular Acceleration, Force, Pressure, Work, Energy, Charge, Potential Difference, Electrical Field Strength, Magnetic Flux, Magnetic Field Strength, Flux density, Luminance, Illumination, P M M C - Sensitivity, DC Ammeter, DC Voltmeter, Power Measurement, Multimeter (Internal Circuits of Simpson RS - 260), AC Instrument Concepts only, Rectifier Type Instrument, Wattmeter, dB Measurement.



Measurement of Parameters

DC Bridges - Wheatstone, Kelvin Bridge, Guarded Wheatstone Bridge, AC Bridges - Maxwell, Hay, Schering and Wien Ground Bridge, Circuit Diagram, Balance condition Concept, Equations Without Detail, Derivation of Balance Condition & Application of Bridges, Harmonic Distortion Concept, Fundamental Suppression Harmonic Distortion Analyzer, Phase Measurement, Vector Voltmeter.

Frequency & Time Measurement

Frequency Time Standards, Measurement of Frequency & Period, Universal Counter, Measurement Errors Gating, Time Base Trigger Level Errors.

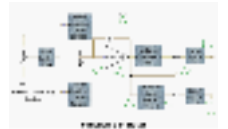
Oscilloscope

CRT- Construction & Operation, Electrostatic & Magnetic Deflection Sensitivity, Screen-Fluorescence, Phosphorescence, Persistence, Focus & Intensity Controls, Basic Connection Diagrams, Basic CRO Operation, Block Diagram of Single Beam, Single Trace CRO, CRO Probe, Input Attenuator, V - amp & Bandwidth Concept, Time Base, Synchronization, Triggering Methods, CRO -Dual Beam, Dual Trace, Block diagram,

Display & Trigger Modes, Operation, Use of CRO - For Frequency, Time, Phase Measurement, CRO-Probes- Passive Voltage, Current Probes, High Voltage Probes, Specification of CRO - Single Trace & Dual Trace.

Generators

Signal Generator, Concept of Oscillator, Frequency Range, Power Impedance, Stability & Distortion characteristics, Standard Signal Generator, AF & RF Type, Block diagram, Simple Controls & Operation of Function Generator & Pulse Generator, Pattern Generator - Working Principle, Block diagram, Operation & Applications, Specification of Signal Generator, Function Generator & Pattern Generator.

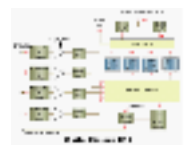


Wave-Analyzer

Spectrum Analysis-Basic of Spectrum, Analysis, Concept of Time Domain & Frequency Domain Instruments, Block diagram of Spectrum Analyzer, Use for CW, AM, FM, Distortion & Power Measurements, Logic Analyzer- Need, Block diagram & Application, Power Measurement of AM/FM Signal, Study of Logic Analyzer & Controls.

Digital Instruments

Digital Instruments, Concepts of A./D Converters & its Parameters, Display $3 \frac{1}{2}$, $3 \frac{3}{4}$ Concept w. r. t. Panel Meters, Digital Voltmeter, Current Meter & Ohm Measurements, AC Measurements Voltage & Current Average True, RMS Measurements, Digital Storage Oscilloscope, IC tester- Block Diagram & Operation for Digital IC Tester only, Block Diagram, Operation & Application only, LCR Meter, Block diagram & Operation only.



High Frequency Measurement

High Frequency Measurements, Q meter - Basis Q & D Concepts, Basic Circuits of Q Meter, Measurement Methods, Measurement of L, M, Q, Co, C, Errors in Measurement, RF Measurement, Measurement of Distributed Parameters, Transmission Line Parameters, Zo Voltage Current Relations & Reflection Coefficient & Standing Wave Ratio, Study of Smith Chart, RF Voltage & Power Measurement Techniques, RF Power / Levels Meter, Antenna Direction Pattern Measurement.

Transducers

Transducers, Classification, Performance Characteristics, Transducers Used for : Temperature - Bimetallic, RTC, Thermocouple Type, Pressure - Bourdon, Diaphragm Type, Flow - Electromagnetic Type, Level - Capacitor, Ultrasonic Type, Displacement - Flapper Nozzle, LVDT type, Principle, Block Operation & Specification only.



Software Module

Digital Instruments, Fundamentals, High Frequency Measurements, Measurement of Parameters, Oscilloscope, Transducers, Units of Measurements & Instruments.

Termwork Module

Contains Assignments on Various Topics Covering Subjective Questions, Objective Questions, Random Selection of Objective Type Questions, Numerical Assignments.

