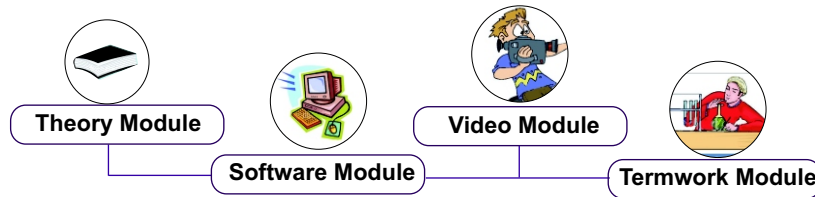


# MECHATRONICS



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

## List of Topics

- ✂ **Mechatronics** : Measurement Systems, Threaded Design Example.
- ✂ **Electric Circuits and Components**: Basic Electrical Elements, Kirchoffs Low, Voltage and Current Sources and Meters, Thevenin and Norton Equivalent Circuit, Alternating Current Circuit Analysis, Power in Electrical Circuits Transformer, Impedance Matching, Grounding and Electrical Interference.
- ✂ **Semiconductor Electronics** :Semiconductor Physics as the Basis for Understanding Electronic Devices Junction Diode, Zener Diode, Voltage Regulators, Optoelectronics Diodes, Analysis of Diode Circuits, Bipolar Junction Transistor, Phototransistor and Opto-Isolator Field-Effect Transistors, Applications of MOSFETs.
- ✂ **System response** : Amplitude Linearity, Bandwidth and Frequency Response, Distortion of Signals.
- ✂ **Analog Signal Processing Operational Amplifiers**: Amplifiers, Operational Amplifiers, Summer, Ideal Model for the Operational Amplifier, Differentiator, Sample and Hold circuit computer.
- ✂ **Digital Circuits**: Introduction, Digital Representations, Timing Diagram, Boolean Algebra, Design of Logic Networks Sequential Logic, Flip Fops, TTL and CMOS, Special Purpose Digital Integrated Circuits, Decad Co Schmitt Trigger, Timer, Integrated Circuit System Design.
- ✂ **MicroController Programming and Interfacing**: Microprocessor and Microcomputer, Microcontrollers The PIC116F84 Microcontroller, Programming a PIC, Pic Basic Pro, Interrupts, Interfacing Commar PIC Peripherals, Interfacing to PIC, Method to Design a Microcontroller-Based System.
- ✂ **Data Aquisition** : Introduction, Quantizing, Analog-to-Digital Conversion, Digital-to-Analog Conversion.
- ✂ **Sensors** : Position and Speed Measurement, Stress and Strain Measurement, Temperature Measurement Vibration and Acceleration Measurement, Pressure and Flow Measurement.
- ✂ **Actuators** : Electromagnetic Principales, Sollenoids and Relays, Electrical Motors, DC Motors, Stepper Motors, Selecting a Motor, Hydraulics, Pneumatics.

