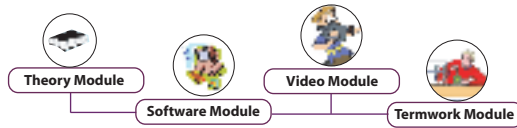


# Modern Control System



System Requirement:- IBM-PC Compatible 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, Access to Videos at appropriate locations.

## List of Topics

### Control System- I

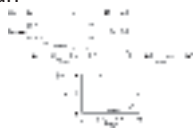


Introduction to feedback control systems, transfer functions and Block diagrams, Servo Components, Time domain analysis, Root locus, frequency- domain analysis introduction to design of control systems.

### Control System-II

## State- variable Technique of analysis

State-space representation using physical, phase and canonical state variables, jordan canonical s state model, conversion of state-space models to transfer functions, decomposition of transfer functions, eigen values and eigen vectors, Invariance of eigen values.



## Design of L.T.I. Control System



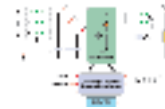
Design of phase- lead, phase -lag, lead-lag and P.I.D.controllers in time- domain and frequency- domain, Pole Zero cancellation Compensation, Minor-loop feedback control, tachometer feedback control.

## Discrete Control systems

Basic segment of a discrete data control system, Z-transformation and properties. Pulse transfer functions, Stability analysis of closed -loop systems Z-domain.



## Non Linear Control Systems



Different types of non-linearities. Phase- plane method, Singular points, Construction of phase- plane plots for non- linear control systems by isocline lots. stable, semi-stable and unstable limit cycles.

## Analog Computer Simulation

Basic principle of analog simulation, Applications of analog computer to solutions of linear differential equations with initial conditions, Magnitude- Scaling and time- scaling, Simulation of different non-Linearities, Analysis of non-linear control systems.

