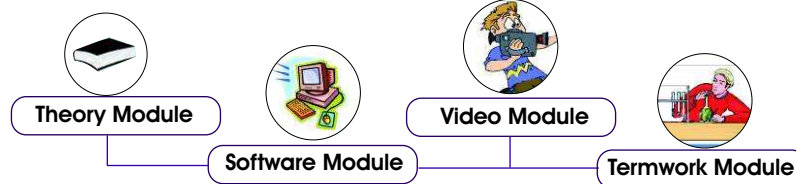


# Robotics & Automation



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

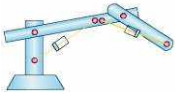
- ✍ Automation
- ✍ Subsystems in Robot
- ✍ Actuators
- ✍ Transmission systems

- ✍ Microprocessors & controllers
- ✍ Industrial robots
- ✍ Manipulators
- ✍ Transmission types

## Introduction to Robotics



## Robotics Mechanism



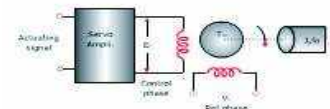
- ✍ Introduction
- ✍ Forward or direct kinematics
- ✍ Direct & Indirect Position measurement
- ✍ Mechanism analysis

- ✍ Spatial manipulators
- ✍ Transmission angle
- ✍ Decoupling of motion
- ✍ Grippers in manipulators

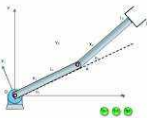
- ✍ Drives in manipulators
- ✍ DC servo conventional motors
- ✍ Field controlled DC motors

- ✍ TDC servo motor selection for
- ✍ Intermittent motion
- ✍ AC servomotors

## Actuators for Robotics



## Trajectory planning



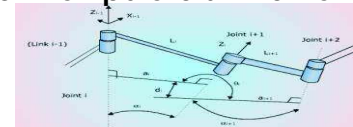
- ✍ Introduction
- ✍ Continuous trajectories
- ✍ AC servomotors

- ✍ Use of higher degree Polynomials

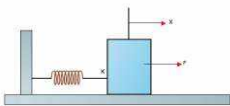
- ✍ Introduction
- ✍ Forward and Reverse position problem
- ✍ Euler angles

- ✍ 3 P manipulator
- ✍ Specifying position & Orientation of rigid bodies

## Robot Manipulators Kinematics



## Robot dynamics & control



- ✍ Fundamentals of dynamics
- ✍ Dynamical equation
- ✍ Coriolis component of acceleration

- ✍ Methods to derive Dynamical equations
- ✍ Sensing methods
- ✍ Micro-sensors

- ✍ Actuator dynamics
- ✍ Types of servo-motors
- ✍ Motor dynamics

- ✍ Simulation model
- ✍ Control strategy for PD control

## Actuator dynamics & PD, PID control for Robot

