

## Innovative technology learning software, for theoretical and experimental training

Includes - • Lecture • Activity



**Robotics** is the branch of technology that deals with the design, construction, operation and application of robots and computer systems for their control, sensory feedback, and information processing. In Simtel Robotics software we will study fundamentals and applications of Sensors, Brain, Actuator, Electronics Components, Display Devices and Robot Kinematics.

### Topics

- **Introduction to Robotics**
- Robotics and Robots
- Asimov's Laws of Robotics
- Types of Robotics

### Robot Mechanical Design

- **Basics of Physics**
  - Force
  - Acceleration and Velocity
  - Magnetism
  - Electromagnetism
- **Robots Kinematics**
  - Joints and Links
  - Degree of Freedom
  - Forward and Inverse Kinematics

### Sensor

- Introduction
- Light Detecting Sensor
- Temperature Sensor
- Gas Sensor
- Ultrasonic Sensor
- Motion Sensor

### Actuators

- DC Motor
- Stepper Motor
- RC Servo Motor

### Measuring Instruments

- Oscilloscope
- Multimeter

### Electronic Components

- Basic Components
- Breadboard
- Types of Battery
- Types of Switch
- Power Source
- Regulator IC's
- Operational Amplifier
- 555 Timer
- Motor Drivers IC's
- Logic gates IC's
- ADC

### Display Devices

- LED
- Seven Segment
- LCD

### Brain of Robot

- 8051 Microcontroller
- PIC Microcontroller
- AVR
- Arduino

### Autonomous Robots

### Application of Robots

- Industrial Application
- Non-Industrial Application

**50+** Activities  
**300+** Learning Objects

