

# Simtel - Robotics 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
- ElectromagnetismRobots Kinematics

- Activities Learning Objects
- **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

# **Brain of Robot**

- 8051 Microcontroller
- PIC Microcontroller
- AVR
- Arduino

#### **Display Devices**

- LED
- Seven Segment
- LCD

# Autonomous Robots



- Joints and Links
- Degree of Freedom
- Forward and Inverse Kinematics

#### Sensor

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

# **Measuring Instruments**

Oscilloscope

• Stepper Motor

RC Servo Motor

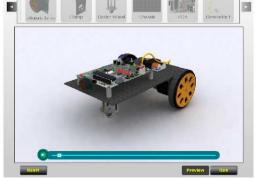
Multimeter

Actuators

DC Motor

### **Application of Robots**

- Industrial Application
- Non-Industrial Application







#### Designed by -

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