

Hexapod Robotics Workshop

Session 1

Introductory & Theoretical session

- Introduction to Robotics.
- Robots and Law of Robots.
- Future aspects.
- Need of Microcontrollers in Autonomous Robots.
- Different parts of Robot.
- Wide description about Microcontrollers.
- Wide description about Arduino Board
- Input & Output peripherals in Microcontrollers.
- Resisters in Microcontrollers.
- Programming of Microcontrollers.

Session 2:

- Kits Distribution
- Software's Installation
- Practical session
- Introduction of Arduino
- Input / Outputs of Arduino
- Interfacings of peripherals.
- Output devices interfacings.
- Practical 1: Programming for LED interfacings with Arduino.
- Practical 2: Different modes of LED blinking.

Session 3

- Motor Interfacing
- Types of motors
- Actuators to be used in Robots.
- Wide description about Servo Motor
- Interfacing of Servo Motor with Arduino
- Practical 3: Controlling different angles of servo motors
- Practical 4: Development of structure of Hexapod Robot
- Project 1: Development of a Hexapod Leg.

Session 4

- Hexapod Structure
- Circuit Designing
- Bluetooth Interfacing
- Programming concepts for Hexapod
- Body Parts of the Hexapod
- Walking Algorithms Calculation
- Calculate the center value of each motor
- Dimensions and curves
- Clamps and their fitting
- Project2: Hexapod Structure Development
- Testing of all the Joints and Rotation of all motor angles