

Robotics

Curriculum



Durations: (45 Days)

- ⇒ **Intro to Robotics** **(2 Days)**
 - What is a Robot?
 - Applications of Robots.
 - Requirements of Robotics
 - Components of a Robot

- ⇒ **Basics of Embedded System** **(3 Days)**
 - Introduction to Embedded System
 - Applications of Embedded System
 - Components of Embedded System
 - Discussion on Microprocessor Vs Microcontroller
 - CISC Vs RISC
 - Von Neumann Vs Harvard Architectures
 - Memory mapped I/O Vs I/O Mapped I/o

- ⇒ **Embedded 'C' Programming** **(3 Days)**
 - Introduction to 'C' Programming
 - Features of 'C' Programming
 - Concepts of algorithm, Resources
 - Programming Structure
 - Data Types, Variables, Operators Assignment & Selection
 - Looping, Functions, Array
 - Pointers
 - Code Writing in Embedded 'C' Language
 - Working with Keil Compiler

- ⇒ **Introduction to 8051** **(15 Days)**
 - 8031/8051/8052 Architecture, Pin description
 - Internal Memory discussion, SFR
 - Addressing Modes, Instruction Set
 - Interfacing with Microcontroller-Practical
 - Logic Controller Interface, LED, LCD, 7-segment, Matrix Display, Traffic Light System Interface
 - Interfacing with Switches, DC Motor, Stepper Motor, Matrix Keypad, ADC, DAC, RTC
 - Working with inbuilt Timer-Counter Section
 - Protocols: Introduction to I2C, SPI, RS232 etc.
 - Serial Communication
 - Interrupts & ISR

Wireless Technologies

(2 Days)

Introduction to wireless Technologies
Introduction to GSM, RFID, Bluetooth, X-bee

Real time Robotic applications

(7 Days)

Temperature Monitoring Robots
DTMF Based Robots,
RF controlled Robots
Line Follower Robot
Light Sensor Robot
Working with IR, TSOP Sensors
ULN 2003, ULN 2803, L293D, 8870, DS1307

PIC

(3 Days)

Introduction To PIC
Internal Architecture of PIC
Diff. between CISC& RISC
Introduction to mikroC
PIC Programming in mikroC

LIVE PROJECT

(10 Days)



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