Robotics & Embedded 'C' Course Content (30 Days)

1. Introduction to Robotics

- History of Robotics
- Why Robotics
- How Robotics works
- Application of Robotics
- Current Industrial Robotics
- Future of Robotics

2. Anatomy of Robotics

- What are Basic Modules?
- Why Need of Basic Modules
- Working Approach on Robotics

3. Introduction of Electronic Components

- What is Electronic Component?
- History of Electronic Component
- Various Electronic Components
- Application of Electronic Component
- How to use Electronic Component

4. Introduction to Sensors

- What is Sensor?
- Various Basic Industrial Sensors-IR- Analog Sensor
- IR Digital Sensor
- Color IR_TSOPS ensor
- Light Sensor
- Sound Sensor
- DTMF Module
- Selection of Sensor
- Basic working Technique of Sensor
- Application of Sensor
- How to Interface Sensor
- How to Design Analog/Digital Sensors

5. Introduction to Computational Devices

- What is Computational Device?
- Transistor
- Logic Gates
- Microprocessor

- Microcontroller
- Difference B/W Various Computational Devices
- Application of various Computational Devices
- Selection of Computational Device
- How to use Various Computation Device/
Work on AVR Family with Mega Series (ATmega8)

6. Interfacing to Actuator

- What is Actuator?

7. How to work on Educational & Engineering Level Actuator

- DC Motor
- DC Geared Motor
- Stepper Motor
- Servo Motor

8. Introduction to Driving System/Locomotion

- What is Driving System?
- Various Types of Driving System
- Why need Driving System

9. How to Drive Motor

- H-Bridge Motor Drive
- Advanced Motor Driver

10. Introduction to Programming Languages

- Various programming Languages
- Selection of programming Language
- Need of Flow Diagram
- How to write First "LEDBLINKING" Code in Embedded C
- Why always First "LEDBLINKING" Code?
Practice on various LED Pattern
- Debugging of Error Program

11. Introduction to LCD Display

- Pin Description of 16x2LCD Display
- Application of16x2LCD Display
- Programming of 16x2LCD Display

12. Interfacing of Anatomy of Robot

- Assembling of Robot

13. Introduction to Timer/Counter

- What is Timer/Counter?
- Application of Timers/Counter
- Registers of Timers/Counter's Different Modes
- Programming on Atemga8 Timers/Counter

14. Introduction to Analog to Digital Convertor(ADC)

- ADC, How it works???
- Different Mode and Registers of ADC
- Programming ADC

14. Serial Communication

- Difference between Parallel and Serial Communication
- USART / UART Protocol
- RS232 Standard
- TTL Converter
- UART Programming

LIVE Projects Covered

- LED Blinking
- Running LEDs
- Sand Glass Filling of LEDs
- Decoration LEDs/LED Patterns Etc.
- Sensor Interfacing
- DC Motor Driving
- Black Line Follower using two IR-Sensors
- White Line Follower using two IR-Sensors
- Sound Operated Robot
- Light Searching Robot
- Wall follower Robot
- Edge Avoider Robot

- Intelligent Line Follower Robot
- Mobile Controlled Robot
- Blinking LEDs using TIMER0
- Stepper Motor Driving(DEMO)
- Servo Motor Driving(DEMO)
- Displaying your Name on LCD
- Blinking Text on LCD
- Automatic Counting of Numbers using LCD
- Digital Voltage Measurement

Robotics &Embedded 'C' Training Kit Details(30 Days)

- 1x(ATmega8miniV4DevelopmentBoard)
- 1x(ATmega8withinbuiltRobosapiensBootloader)
- 1x(USB Connector cable)
- 1xLCD 16x2
- 1x(High Quality Plastic Chassis Board)
- 1x(DTMF Decoder Module for Mobile Controlled Robot)
- 1x(Screwdriver)
- 1x(Ball Caster wheel)
- 2x(IR Based Digital Sensors)
- 4x(Support Studs)
- Pair wheel76mmDiameter
- Pair D.C Plastic gear motors
- Sound Sensor.
- Light Searching Sensor.
- 1x TTL
- Software CDwithmorethan30WorkingCodesfordifferentProjects
- Battery Holder
- Other required Tools and accessories etc