

AVR MICROCONTROLLER



CURRICULUM

Embedded Systems with Microcontroller (AVR)

» Embedded system

- Brief idea of Embedded Systems & Industrial applications
- Application/Area wise need of Embedded
- Hardware classification for Embedded

» Brain of Embedded Appliances

- Brief idea of Micro-controller/processor
- Why Microcontroller?
- Architecture of Microcontroller
- System architecture – RISC, CISC, Harvard, Von-Neumann
- Architecture of Microcontroller

» Embedded C

- Introduction classes
 - Basic syntax & programming structure
 - Data types, variables & operator
 - if-else & switch selection statement
- Conditional statements or looping
 - While, do-while
 - For, nested-for statements
 - Infinite loops
- C – Array
 - Introduction to array
 - Initialization & defining arrays

» Microcontroller (AVR)

- Features of microcontroller
- Pin out of microcontroller
- GP I/O Port specification
- Description about all Ports
- Description about IDE for programming
- Proteus Simulation for microcontroller
- I/O programming using Embedded C
- Led on/off programming

- Led pattern programming
 - Data shifting from left to right & right to left
 - Curtain open/close programming
 - Even/odd bit toggling
- Sensor interfacing with microcontroller
 - LM35(Temperature Sensor)
 - RFID
 - RF Receiver/T ransmitter
 - Accelarameter
 - IR Sensor
 - Gas Sensor
 - Alchohol Sensor
 - Touch Screen
- Motor interfacing
 - Program for controlling direction of DC motor
 - Stepper motor
- 16x2 LCD Display
 - 16x2 LCD command & data register
 - Name/Data printing over LCD
 - Moving message display

» Advanced features of Microcontroller

- TIMER
 - TIMER register explanations
 - Programming of TIMER
- ADC
 - ADC register explanations
 - Programming of ADC
 - Interfacing of temperature sensor
- Serial communication
 - Communication between microcontroller & computer system
- Advance Communication Protocol
 - SPI (Serial Peripheral interface)
 - I2C (Inter integrated circuit)
- Project as per Module

Partners :



Java



development | consultancy | training

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