

CERTIFICATION PROGRAMS IN EMBEDDED SYSTEMS

PROGRAMMING & APPLICATION DEVELOPMENT

Duration : One Month
Intake capacity : 30
Eligibility : Diploma / B.E / B.Tech / M.Tech in ECE
Objectives :

On completion of this programme the participants will be able to

- Programme the 8051 Microcontrollers
- Programme the PIC Microcontrollers
- Programme the AVR Microcontrollers
- Serial communication between Microcontrollers
- Setup a I²C communication between Microcontrollers
- Programme the GSM modules
- Programme the GPS Modules
- Programme the Zigbee Modules
- Design Real time Embedded System applications

Course Content:

Sl No	Theory	Practical
1	8051 Microcontrollers Programming and Applications: Introduction to 8051 Microcontrollers, Introduction to Keil Microvision Software and ISIS Proteus Simulator, I/O Port Programming, 8051 Programming in C, 8051 hardware connections and Hex file creations, 8051 Timer/ Counter Programming in C, 8051 Serial Port Programming in C, Interrupt Programming in C, 8051 Real world Interfacing: LED, LCD, Keyboard , Buzzer, Relay Interfacing	I/O Port Programming of 8051 Timer Programming of 8051 Interrupt Programming of 8051 Serial Communication for 8051 LCD interfacing with 8051 Keypad Interfacing with 8051 Buzzer interfacing with 8051 Relay interfacing with 8051
2	PIC Microcontrollers Programming and Applications: Introduction to PIC Microcontrollers, Introduction to CCS PIC C and ISIS Proteus Simulator, Architectural overview, Memory organization, I/O Ports, Interrupts and Reset, Timers, Capture / Compare / PWM Module, Power down modes	I/O Port Programming of PIC Timer Programming of PIC Interrupt Programming of PIC Serial Communication for PIC LCD interfacing with PIC Keypad Interfacing with PIC
3	AVR Microcontrollers Programming and Applications: Introduction to AVR Microcontrollers, Introduction	I/O Port Programming of Atmega16A Timer Programming of Atmega16A Interrupt Programming of Atmega16A

	to Code vision Software and ISIS Proteus Simulator, AVR Programming in C, AVR hardware connections and Hex file creations.	Serial Communication for Atmega16A LCD interfacing with Atmega16A Keypad Interfacing with Atmega16A Sensor Interfacing with Atmega16A ADC Interfacing with Atmega16A
4	User Peripherals: General purpose I/O, Fast I/O Register, Interrupt port, General purpose Timers, Real Time clock, Analog to Digital Converter, Digital to Analog converter, Serial peripheral Interface(SPI), PWM	Programme to interface LED,LCD, Keyboard, Buzzer, Relay with AVR Microcontroller Programme to interface ADC, DAC with AVR Programme to communicate SPI Programme to control motor using PWM
5	Motors: DC motors, BO motors, Stepper motors, transformers, power supply circuits, relays, actuators	All modules interfaces
6	Embedded Communication Modules and its applications: RS232, RS485, UART, I2C	Programme to communicate using RS232 Programme to communicate using RS485 Programme to communicate using UART Programme to communicate using I2C
7	GSM, GPS Interfacing	Programme to interface GSM, GPS modules.
8	Zigbee transmitter and receiver, IR communication, Bluetooth basics	Programme to communicate using Zigbee Programme to communicate using Bluetooth



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