Embedded Systems Course Syllabus

INTRODUCTION TO EMBEDDED SYSTEM

- History & need of Embedded System
- Basic components of Embedded System
- Programming Language Classification of Embedded System
- Advantage & Disadvantage

MICROPROCESSOR & MICROCONTROLLER CLASSIFICATION

- Difference between Microprocessor & Microcontroller
- Classification based on architecture
- Memory Classification

REGISTERS & MEMORY OF AT89C51

- Description of RAM
- Description of CPU Registers
- Functions of SFR

INTRODUCTION OF EMBEDDED C

- Introduction to Embedded C
- Difference between C & Embedded C
- Programming style
- Basic structure of C program

CONSTANTS, VARIABLES & DATA TYPES

- Keywords & Identifiers
- Data type & its memory representation
- Arrays and strings

OPERATORS

- Types of Operators
- Bitwise Operators explained

Special Topics:

- **PIC**
- **Android Mobile Based Embedded Systems.**

***Highlights*:**

- **MNC Trainers**
- **Practical Training (No classroom sessions)**
- **Quality study materials.**
- **Flexible Timings.**
- **Real Time project involvement**
- **Professional Certificates.**
  - **Course Completion**
  - **Project Completion**

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➢ CONTROL STRUCTURES & LOOPS

- Decision making with if statement
- If….else statement
- Switch statement, and GOTO statement
- The While and Do – While statements
- For statement

➢ FUNCTIONS

- Why Functions
- Types of Functions
- A Multi functional program
- Return values & their types

➢ INTERODUCTION TO SOFTWARES

- Kiel Compiler
- Proteus

➢ INTERFACING OF LED

- Introduction of LED's
- Interfacing Circuit Description of LED's
- Programming of LED's Interfacing

➢ INTERFACING OF SEVEN SEGMENT DISPLAY

- Introduction to 7 Segment Display
- Types of 7 Segment Display
- Interfacing Circuit Description of 7 Segment Display
- Programming of 7 Segment Display Interfacing

➢ INTERFACING OF LCD

- Introduction to 16 x 2 LCD
- Commands of 16 x 2 LCD
- Interfacing Circuit Description of 16 x 2 LCD
- Programming of 16 x 2 LCD

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➢ INTERFACING OF SWITCHES & KEYBOARD MATRIX

- Introduction to Switches & Keyboard Matrix
- Interfacing Circuit of Switches & Keyboard Matrix
- Programming of Keyboard Matrix & Switches
- Controlling of LED's by using Switches
- Key board Matrix & LCD Interfacing Program

➢ INTERFACING OF MOTORS

- Introduction to Motors
- Types of Motors used in Embedded System
- Programming & Controlling of motors in Embedded System

➢ TIMERS & COUNTERS PROGRAMMING

- Introduction to Timers & Counters
- Difference between Timer and Counter
- Description of SFR associated with Timers & Counters
- Programming of Timers & Counters

➢ SERIAL COMMUNICATION PROGRAMMING

- Introduction to Serial Communication
- Types of Serial Communication
- Description of SFR associated with Serial Communication
- Programming of UART

➢ INTERFACING OF ADC

- Introduction to ADC
- Programming of ADC

➢ SENSOR INTERFACING

- Introduction to sensing devices
- Interfacing of IR Sensors
- Interfacing of Temperature Sensor

Special Topics:

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➢ EMBEDDED NETWORKING

- I2C Bus Standard
- Bluetooth
- Zigbee
- USB
- UART

Special Topics:

- PIC
- Android Mobile Based Embedded Systems.

➢ LINUX FUNDAMENTALS & DEVICE DRIVER PROGRAMMIN

- Linux Fundamentals
- Linux Commands
- VI Editors
- Introduction to Device Driver
- The Role of Device Driver
- Kernel Module Vs Application
- Types of Device Driver
- Character Driver
- Block Driver & Network Driver

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Project work is mandatory after the completion of the training program.

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