

## Embedded C Syllabus

- **Embedded C**
  - Why C, why not other languages.
  - Basics of C language
  - Overview of C Programming language
  - Embedded C programming
  - Embedded C language implementation
  - Programming & debugging
  - Interrupt Handling in C
  - Advance programming in Embedded C with practical's
  - Differences from ANSI-C
  - Combining C with Assembly
  - Basics of Program Writing
  - Coding Practices
  - Embedding Assembly code in C program
  - Debugging and Optimization of C programs
  - Handling portability issues in C
  - Why C, why not other languages.
  - Basics of C language
  - C Program Structure
  - Variables, Constants, Operators
  - Order of Precedence
  - Conditionals statements & Loops
  - Arrays and Strings
  - Single and Multi-dimensional Arrays
  - Arrays and pointers
  - The C Processor
  - Preprocessor Compiler Control
  - Other Preprocessor Commands
  - Advance programming in Embedded C with practical's

- **Introduction to Embedded:**

- What is embedded System
- Embedded Design development life cycle
- Embedded System Programming
- Embedded Systems Design Issues
- Electronics Designing Concepts
- Trends in Embedded Systems
- Challenges and Design Issues in Embedded Systems
- Memory (RAM, ROM, EPROM, EEPROM, FLASH)
- Host & Target Development environment
- Cross Compilers
- Programming Techniques
- Introduction to Embedded Development tools
- Assemblers, Compilers, Linkers, Loaders, Debuggers
- Embedded In-Circuit Emulators and JTAG
- Tools, Build Tools for Embedded Systems

**External Hardware Interfacing:**

- Interfacing of LEDs
- Interfacing of Switches
- Interfacing of Relays
- Interfacing of LCD
- Interfacing of 7 Segment Display
- Interfacing of ADC
- Interfacing of Stepper Motors
- Interfacing of DC Motors
- Interfacing of Mobile Phone using DTMF
- Interfacing of Real Time Clock
- Interfacing of GSM
- Serial Communication
- Sensor Interfacing

**Note: Above Interfacing can be taken with any of following microcontroller**

**8051**

**PIC**

**AVR**

**ARM7**

## **8051 Syllabus**

### **8051 Micro-controller:**

- Micro-controller Basics
  - Introduction to 8051 architecture
  - Comparison of 8051 with RISC based systems and Microprocessors
  - RAM, FLASH, UART and other peripherals.
  - Pin configurations of different Micro-controllers
  - Introduction to 8051 programming KIT
  - Introduction & Assembly Language
  - Branching & Looping
  - I/O Programming
  - Memory Modes & Arithmetic
  - Introduction to C Programming for 8051
  - Timers & counters, Serial Communication
  - Interrupts & Handling ISR
  - Software tools used for programming
  - Hardware interfacing with peripherals
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