Embedded C Programming using PIC Microcontroller

(Duration : 80 Hrs)

Introduction

- Introduction to Embedded Systems
- Introduction to Microcontrollers and MicroProcessors
- Criterias for choosing a microcontroller

Introduction to C Programming

- Introduction to Linux
- Familiarizing with the Linux environment
- VI Editor and the GCC compiler
- Simple Linux Commands
- Introduction to GCC
- C Programming with GCC

C Language Fundamentals

- Character set
- Identifiers
- Keywords
- Data Types
- Statements
- Expressions
- Operators
- Input-output Assignments
- Control structures
- Decision making and Branching
- Decision making & looping
- Arrays and Strings One dimensional Array
- Multidimensional Array declaration and their applications
- String Manipulation

C Functions

- User defined and standard functions
- Formal and Actual arguments
- Functions category
- Function prototypes
- Parameter passing

Introduction to Pointers

- Pointer variable and its importance, Pointer Arithmetic
- Storage Classes

PIC Microcontroller

- PIC Architecture
- Architectural features
- Pin description
- Memory organization

Introduction to Embedded C Programming

- Introduction to PIC Compiler
- Creating Applications
- Creating Projects
- Creating new Source files
- Compiling and running of a program

Introduction to Proteus for Simulation

- How to draw circuits and simulate various programs in Proteus

Peripheral configuration I/O Ports

- I/O port programming
- Study of input output ports in PIC Microcontroller
- Port Operations with LED and dip switches

UART module

- Study of UART module in PIC Microcontroller
- Serial communication concepts
- Familiarization with voltage level shifter

Analog to Digital Converter

- Study of ADC in PIC Microcontroller
- Interfacing LM35

Real World Interfacing

- Interfacing LCD Module
- Interfacing Hex keypad

Application Development & Evaluation