

Training workshop:

Embedded C Programming for 8051

Introduction:

This training course will guide you through important techniques, useful for writing efficient 8051 applications in 'C'.

Participants perform hands-on embedded programming, on PC and 8051 target board during course practical.

Course duration: 3 days

Who can benefit from this training:

Anyone working with 8051 family micro-controllers – R & D Engineers (software and hardware) involved in 8051 based product development, R & D Managers, self-employed professionals, micro-controller Hobbyists, and Students who are serious about career. Some participants had experience of 8051 assembly language programming, but wanted to switch over to 'C' programming. Even some others had experience of computer programming in 'C', but no experience of writing 8051 applications.

Prerequisites:

The participant should have reasonable knowledge (but not necessarily long experience) of 'C' programming language. Familiarity with the 8051 micro-controller is also necessary.

Homework to do before the training program:

It will be a good idea to read and refresh your knowledge about 'C' programming language as well as the 8051 micro-controller architecture.

What will you gain from this training program:

You will learn the differences between writing computer applications and 8051 applications, further you will learn several techniques to write optimized 8051 applications in 'C'.

Covered topics:

1. Basic C Programming

C programming techniques useful for microcontroller programming, such as control structures, logical and bitwise operations.

2. Introduction to Microcontroller Architecture

Brief overview of the 8051 architecture, pin diagrams and peripherals contained in the microcontroller.

3. **GPIO programming and link to basic I/O devices**
Details on setting GPIO register bits for controlling GPIO as input and output pins.
4. **LCD Interfacing**
Details on hardware connection of LCD and how to control LCD to display characters.
5. **Keypad Interfacing**
Details on hardware connection of keypad and how to detect characters pressed on the keypad.
6. **Control of Timers**
Setting up and using the timer subsystem in the 8051 for performing timing and PWM.
7. **Interrupts Usage and Control**
Setting up and using common 8051 interrupts, such as the External, Timer0
8. **Serial Communications programming**
Details on programming the USART module on the 8051 for sending and receiving data via the serial port.
9. **Analog to Digital Converter (ADC) programming**
Details on programming the ADC module to measure the voltage on the analog pins of the 8051.
10. **Controlling Stepper Motor**
Details on the Stepper motor controlling, Half step, controlling the angle, step size

Corporate Training - Registration Form

Organization			
Name of company		Contact Person :	
Address			
Tel		Fax :	Email :

Participant <i>(Please fill in BLOCK Letters)</i>			
Name		Designation :	
NRIC/Passport No.		H/P No:	Email :

(Please use page 2 for more than one nominee)

Course to Participate			
Course	Course Location	Dates of Training	Number of Nominees

Payment: An invoice will be issued for you to effect payment.

We confirm the above registration:

Name: _____ Signature: _____ Date: _____

Administration Details:

Registration is considered as confirmed upon full payment is made.

All cancellations must be made in writing. There will be no charge for cancellation received 15 or more working days before the start of the course. Cancellation received 7-14 working days before the start of the course is subject to a cancellation fee of 50% of the course fees. Cancellation received less than 7 working days before the start of the course is subject to a cancellation fee of 100% of the course fees. If the participant fails to attend the course, the full course fees are still payable. However, replacement can be accepted at no additional cost.

10% (or stated otherwise) group discount is applicable for registration of three (3) or more participants for the same course and of the same billing source.

We reserves the right to change the facilitator, venue, reschedule or cancel the course and all efforts will be taken to inform participants of the changes.

Upon submission of this form, our customer service will revert to you with necessary documents and updates to you or your representative!

Name of company		Contact Person :
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List of Participants *(Please fill in with BLOCK Letters)*

1. Name		Designation :
NRIC/Passport No.		H/P No: Email :

2. Name		Designation :
NRIC/Passport No.		H/P No: Email :

3. Name		Designation :
NRIC/Passport No.		H/P No: Email :

4. Name		Designation :
NRIC/Passport No.		H/P No: Email :

5. Name		Designation :
NRIC/Passport No.		H/P No: Email :

6. Name		Designation :
NRIC/Passport No.		H/P No: Email :

7. Name		Designation :
NRIC/Passport No.		H/P No: Email :

8. Name		Designation :
NRIC/Passport No.		H/P No: Email :