TICO™

MICROCHIP ATMEL RENESAS ARM Cortex M3

PIC 18F4550 PROFESSIONAL COURSE IN ESD

QUALITIES OF INSTITUTE:

1. Awarded Best Institute in Embedded (2010-11) & (2009-10)
2. ISO 9001:2008 Certified IAO (International Accreditation Organization, USA) Candidacy Status
3. Trained more than 3600 students since 2002
4. Individual PC & training kit for each student for better learning
5. Individual attention to each student
6. Well tested and proven training methodology

CONSULTANCY

DESIGNING

TRAINING

MANUFACTURING

COURSE DETAILS

The Hardware foundation stone:
- Basic Electronics
- Analogue Electronics
- Digital Electronics

C Programming
- Introduction to Structural Programming & C
- Features of C
- Data Types, Variables, Constants
- Operators, Expressions
- Control Structures
- Functions
- Arrays

Embedded C
- Introduction to Embedded C
- Difference between Embedded C and Regular C.
- Ports Configuration
- Embedded C Library
- Program Logic
- Processor Directives

Microcontrollers 18F4550
- Microcontroller chips
- Programmable logic device
- Deciding which device to use in application RISC computing
- Harvard architecture Vs Von-Neumann architecture

The microchip PIC micro MCU Processor Architecture
- Pin Diagram and Port Architecture
- Device and feature summary
- Program Memory
- Data/ Ram memory
- Status Register, Working register, Ports (input or outputs),Option register, Configuration register
- Reset vector, Interrupt vector
- Stack, Program counter
- The CPU, Data movement
- The PC and the stack
- The PIC micro MCU Inst. set
- Addressing modes, MPLAB IDE
- PIC micro MCU compatible devices

CCS PIC C Compiler:
- Understanding CCS Compiler features, build in functions, help menu, sample codes, driver files., #include files Including header file for MCU, Project Files, Driver files

PIC WIZARD
- Creating projects using PIC WIZARD, understanding compilation errors & help file, Advanced Programming with CCS PIC C compiler

Learning Modules (Hands on Practical)
- Theoretical aspect of each module
- Practical implementation
- **Led Interfacing**
  How it works. How LEDS will rotate
  How to connect with microcontroller
  What is sourcing & sinking?
- **Linear Keys**
  What is the type of switches?
  Their types & function
- **Matrix Keypads**
  How they work
  How to interface with microcontroller
- **Seven Segment Display**
  What are the types of display?
  Difference between Common Anode and Cathode
  Driving circuits
- **LCD (Liquid Crystal Display)**
  What is LCD?
  How to give LCD commands?
  How to interface LCD with Micro?
- **Relays**
  What are the different types of Relay?
  How it connects with microcontroller.
- **Piezo buzzer (Alarm unit)**
- How does a buzzer sound?
- **Opto Couplers**

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An Investment in Knowledge Pays Best Returns.

-Benjamin Franklin

What are Opto-Coupler?
Interfacing Opto-Isolators

- **Stepper motor**
  How a stepper motor works?
  How to drive stepper motor?
- **DC Motor**
  How a dc motor works?
  Motor driver's IC
- **On Chip Timer**
  What is a timer? How does a 51timer works?
  How to make accurate delay using timer.
  Timer Interrupts
  How to write code for timer?
- **PWM (Pulse Width Modulation)**
  How to generate PWM using timers
- **On Chip Counter**
  Counter Interrupts. How does it work?
  What are the different modes of counter?
  How to write code?
- **External Interrupt**
  What is an interrupt? How does it work?
  How to write code?
- **Serial Interrupt**
  What is a serial interrupt? How does it communicate (Receive and Transmit)?
  How to write code?
- **Additional Interfaces**
  Concept of Real world interfacing devices like electrical home Appliance/sensors activators, electromechanical devices
- **Sensors:**
  Temperature Sensor LM 35, Light Intensity sensors, Voltage sensors, Current sensors, IR sensors, Photo diode
- **ADC (Analog to digital converter)**
  To access the on chip ADC & see its effect by varying signals.
  ADC module handling, 8bit. 10bit ADC
- **Timer 0-1-2**
  Initializing TMRO-1-2 timer sample code

Interrupt handling, writing ISR USART (MAX232)
PC communication to send & receive data

- **PWM**
  PWM function & handling
- **12C E2prom memory**
  I2C Protocol & implementation to read memory 24C64,
- **Real Time clock ICs**
  RTC Protocol & implementation to read internal register of the RTC DS1307 IC

Wireless communication

- Typical frequencies
- Types of wireless communications
- 433 MHz
- 2.4 GHz

GSM (Global systems for Mobile)

- Introductions
- services
- Architecture
- Characteristics
- Advantages
- RFID Cards
- The card standards
- 125 KHz and 13.56 MHz
- Mifare cards

Hands on Practical Interfacing:

- Sending and receiving data with microcontroller
- Interfacing GSM and Rfid card Modules with the PC
- Developing the Software for the GSM and Interfacing with Micro Controller**I**
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With all this to offer, this is an opportunity of lifetime for you, so what are you waiting for, come and be the part of 120 Billion Dollars Embedded Industry
Certificates: The participants will be given certificate from TICO after the completion of the course and other requirements.

Duration:
Timing:
Batch Time:
Start date:
Investment in Knowledge

TICO
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