TICO ™

MICROCHIP • ATMEL • RENESAS • ARM • ST Cortex M3

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

CISC based 8051 Programming
- Binary Number systems
- Microprocessor Vs Microcontroller.
- CISC Vs RISC Architecture.
- Introduction to Microcontroller.
- The 8051 Architecture
- 8051 Hardware, System Design and Troubleshooting
- 8051 Registers
- On Chip Memory Organization
- Port Organization
- Pin Description of 8051 Microcontroller
- On Chip Peripherals
- 8051 Interrupts
- Instruction Set
- Addressing Modes
- The 8051 Programming in C
- Programming Tools and Techniques
- Loading Program into Microcontroller

Embedded Programming in Keil Software:
- Introduction to Keil IDE.
- Features of Keil Software and Keywords
- Embedded Software development
- Advanced Programming with Keil Software
- Embedded Programming Issues.

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
- What are Opto-coupler?
- Interfacing Opto-Isolators

Stepper motor
- How a stepper motor works?
- How to drive stepper motor?
- **DC Motor**

Note : All above used logos and trademarks/registered trademarks are properties of their respective companies.

- How a dc motor works?
- Motor driver's IC

On Chip Timer
- What is a timer? How does a 51 timer 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?

USART (MAX232)
- PC communication to send & receive data
- **Additional Interfaces**
- Concept of Real world interfacing devices like electrical home
- Appliance/sensors activators, electro-mechanical devices

Sensors:
- Temperature Sensor LM 35, Light Intensity sensors, Voltage sensors, Current sensors,
- IR sensors, Photo diode

Analog to Digital Converter
- ADC 0809 How it works, interfacing with microcontroller, how to write the code

Digital to Analog Converter
- DAC 0800, How it works, Interfacing with microcontroller

I2C 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

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	