TICO™

MICROCHIP ATMEL RENESAS ARM Cortex M3

ADVANCE DIPLOMA IN EMBEDDED SYSTEM DESIGN

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 DESCRIPTION

The Hardware foundation stone:

Basic Electronics
Analogue Electronics
Digital Electronics
How to use various laboratory Instruments & Device

COURSE DETAILS

Test 1: Basic electronic fundamentals

LINUX FUNDAMENTAL

Introduction to an Operating System

Necessity of an Operating System in Embedded Projects Major Features of an Operating System

- Task Management
- Interrupt Management
- Memory management
- File System Management
- Hardware Management
- What is Kernel of an Operating system
- Types of Kernels used in various Operating Systems
- Micro Kernel
- Monolithic Kernel

Introduction to Linux OS

- Understanding Linux OS version and Kernel version numbering scheme
- Concept of User Space and Kernel Space
- Concept of System Call
- Linux File System Overview
- Linux Directory Structure Overview
- Linux Process and Threads

Creating Linux Build Environ-ment for C Programming

- Installing VMWare and Linux Ubuntu on Windows-7 Machine
- Compiling and Running C programs in Linux Operating System
- Frequently used Linux commands
- VI Editor

Test 2: Linux fundamentals

The Software foundation stone:

C PROGRAMMING

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

Embedded C

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

Test 3: C fundamentals

CISC based 8051 Programming

- 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
- Embedded Software development
- Advanced Programming with Keil Software
- Embedded Programming Issues.

Test 4: 8051 Microcontroller fundamentals

Project work 1 on 8051 based Hands on Practical Interfacing:

- Driving LEDs

TICO™

An Investment in Knowledge Pays Best Returns.

-Benjamin Franklin

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

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- Interfacing of matrix keypad
- Driving Seven Segment Displays
- Common Anode and Common Cathode
- Interfacing of LCD in 4-bit mode.
- Interfacing of Stepper Motor
- Driving Relays
- Interfacing of DC Motor
- Interfacing of ADC
- Interfacing of DAC
- Internal Timers/counters
- Interfacing of the USART
- Interfacing of e2prom

RISC BASED PIC PROGRAMMING

- 18F4550 Architecture (8 Bit).
- Features and architecture.
- Pin-out.
- Memory organization.
- Interrupts & Special function registers

CCS PIC C Compiler:

- CCS Overview
- PCW IDE
- PCW Compiler
- Built-in Functions
- Advanced Programming with CCS PIC C compiler

Hands on Practical Interfacing:

- Driving LEDs
- Interfacing of matrix keypad
- Driving Seven Segment Displays
- Common Anode and Common Cathode
- Interfacing of LCD in 4-bit mode.
- Interfacing of Stepper Motor
- Driving Relays
- Interfacing of DC Motor
- Interfacing of ADC
- Interfacing of DAC
- Internal Timers/counters
- Interfacing of the USART
- Interfacing of e2prom

Test 5: PIC Microcontroller fundamentals
Project work 2 on PIC Microcontroller
Serial Protocols:

- RS 232
- RS 485
- I2C
- SPI
- Ethernet
- USB

Test 6: Serial Protocols fundamentals
PCB Designing
PCB designing software
How to place tracks
Real Time Operating System

- Review and basic concepts of RTOS
- Overview of the available RTOS
- Salvo RTOS, VxWorks, PSOS, COS, WinCE etc

Test 7: RTOS

Development Tools:

- Development Boards
- Simulators
- Emulators
- IC Debugger
- Build Tool Chains
- Debug Monitors and JTAG Debuggers

ARM 32 Bit Controller Architecture.

- General Description and Architectural Overview
- Pin-out
- Memory Organization
- I/O Ports,
- Special function Registers
- Special Features of the CPU
- Addressing Modes
- Instruction Format
- ARM Program/ Software development tools

Hardware Interfacing:

- Driving LEDs
- Interfacing of matrix keypad
- Interfacing of LCD 16 x 2 line
- Interfacing Graphic LCD 128x 64
- Interfacing of ADC

Wireless communication

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

GSM (Global systems for Mobile)

- Introductions
- services
- Architecture
- Characteristic's
- 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

Personality, Attitude and Skills Development Program

- Introduction of Life Skills
- Attitude Development
- Communication Skills
- Personality grooming to cope job Interviews
- Time Management
- Resume Preparation

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.