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Diploma In Industrial Embedded System

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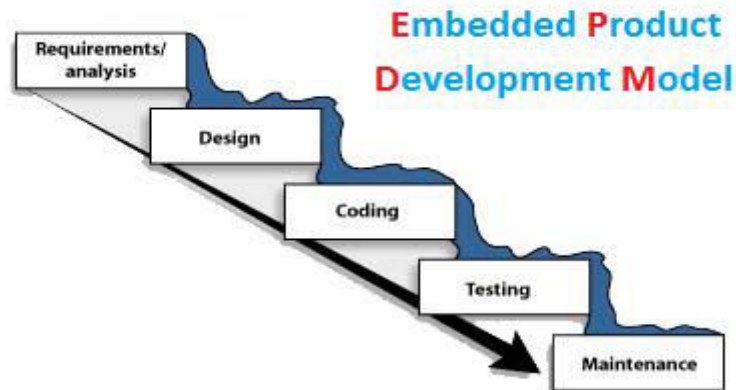
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Embedded Technosolutions is a Professional Training Institute & a Company which Working for Indian MNCs & Medium/Small Scale Industries in Product R&D, Development, Manufacturing & Customization.

Also our training sessions are purely practical based on industrial standard.

Till Now We Worked for the following Industries

- Crompton Greaves Ltd, Mumbai
- Laboratory Corporation of America, LabCorp, Burlington, NC USA
- Netfinity, India
- Continental Grain Corporation
- Brook Furniture Rental, Chicago, IL
- ITA, Bangalore



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- RAK Ceramics, Mumbai
- Nvidia, Pune
- ARORA, Mumbai
- RED Cell, Mumbai
- Secutech, Mumbai

Course Objectives

1. To provide professional and industrial standard training which will help the students to get job in the core industries
2. To learn practical orientation of actual industrial product design
3. To learn Embedded C Programming which is the important part of Embedded Product Development
4. To learn Programming of Internal Peripherals in Embedded C



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5. To learn ARM7 Architecture in detail (LPC2148)
 6. To learn Hardware Requirements for LPC2148
 7. To learn 8051 Architecture in detail
 8. To learn Hardware Requirements for 8051
 9. Learn wireless communication , wireless modules & their interfacing
 10. Embedded Linux with advanced Raspberry Pi which is
Important requirement of the core market now
 11. Learn about RTOS and its application in Real Time Product
Development
 12. To learn the designing of Real World Projects



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Course Syllabus

Embedded C Programming

Chapter 1 : Introduction to C

- 1.1 Special features of c
- 1.2 C compilation process with GCC under Linux
- 1.3 C identifiers, variables, keywords and constants
- 1.4 C data types

Chapter 2: Instructions

- 2.1 Operators
- 2.2 Decision control instructions
- 2.3 Loop control instructions

Chapter 3: Functions

- 3.1 Library functions



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- 3.2 User defined functions
- 3.3 Function declaration and definition
- 3.4 Passing arguments by value and by address
- 3.5 Storage classes
- 3.6 Preprocessors

Chapter 4: Arrays and strings

- 4.1 Array declaration and initialization
- 4.2 Passing arrays to functions
- 4.3 Initialization of strings
- 4.4 String library functions

Chapter 5: Pointers

- 5.1 Pointer basics
- 5.2 Passing arguments by address
- 5.3 NULL pointers



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ARM 7 (LPC2148) Processor

Chapter 1: Introduction to ARM Processor

- 1.1 Introduction to embedded system and ARM Processor
- 1.2 ARM processor family
- 1.3 Application of ARM Processor
- 1.4 Compiler
- 1.5 Difference between RISC & CISC

Chapter 2 : LPC2148 Microcontroller Pin details, Memory

- 2.1 LPC2148 ARM7 microcontroller
- 2.2 Features of LPC2148
- 2.3 Block diagram of LPC2148
- 2.4 Pin diagram of LPC2148
- 2.5 Architectural overview
- 2.6 On-chip flash program memory
- 2.7 On-chip static RAM

Chapter 3 : Keil IDE

- 3.1 Introduction to Keil IDE



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3.2 Creating project with Keil

3.3 Debugging

Chapter 4 : Hardware Interface

4.1 Minimum system requirements for LPC2148

4.2 Hardware interfacing details

Chapter 5 : System Control

5.1 PLL

5.2 External Interrupt input

5.3 Power Control ,VPB

Chapter 6 : Pin Connect block ,GPIO

6.1 Pin Connect Block

6.2 General Purpose I/O:

LED and switches interfacing

Buzzer

LCD

DC Motor

Matrix keypad interfacing



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Chapter 7 : Timer , ADC , UART

- 7.1 Timer
- 7.2 10-bit ADC
- 7.3 UART : Features, Serial Communication

Chapter 8 : I2C , SPI ,PWM

- 8.1 2C-busserialI/OController:Features&InterfacingwithAT24C04
- 8.2 SPI-Serial I/O Controller : Features & Interfacing with SD Memory Card
- 8.3 PWM



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Raspberry Pi with Embedded Linux

Chapter 1

- 1.1 Program Raspberry Pi : a credit-card sized computer
- 1.2 Python programming for Raspberry Pi
- 1.3 Interacting and configuring the RPi OS
- 1.4 ARM 11 architecture
- 1.5 Porting of Linux Kernel and booting RPi

Chapter 2

Linux programming basics

Chapter 3

- 3.1 Programming the GPIO and interfacing peripherals With Raspberry Pi
- 3.2 Generating PWM signals through the Pi

Chapter 4

- 4.1 Programming and work with UART protocol
- 4.2 Remote Login methods: HyperTerminal, Ethernet

Chapter 5



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Work with I2C protocol

Chapter 6

Developing GUI with TKinter

Microcontroller 8051

Chapter 1

1.1 Introduction to Embedded Systems

1.2 Scope in Embedded Systems

Chapter 2

2.1 Introduction to microcontroller 8051 series

2.2 Hardware architecture of controller

2.3 Controller I/O ports

2.4 Memories of controller

2.5 Registers and Register bank of controller

2.6 Concept of Serial communication ,Interrupt etc.



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Chapter 3

- 3.1 Introduction of Embedded Software
- 3.2 Introduction of Embedded C Programming and programming concepts
- 3.3 Introduction of program burning / flashing software

Chapter 4

- 4.1 I/O interfacing concept
- 4.2 Led Blinking logic and delay generation routine
- 4.3 Design of Traffic Light Controller System

Chapter 5

- 5.1 Character LCD 16x2 interfacing logic and concept
- 5.2 Introduction of LCD command and data signals
- 5.3 LCD based programming
- 5.4 Practical project based on character LCD

Chapter 6

- 6.1 Matrix keypad interfacing logic and concept
- 6.2 Introduction of key pad interfacing using polling method
- 6.3 Matrix keypad programming
- 6.4 Practical project based on matrix keypad



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Chapter 7

- 7.1 Introduction to serial communication
- 7.2 Serial communication concept
- 7.3 Introduction of serial communication firmware and registers
- 7.4 Serial communication programming
- 7.5 Practical application based on Serial communication

Chapter 8

- 8.1 Introduction of interrupts in controller
- 8.2 Interrupt logic and concept
- 8.3 Interrupt routines / programming
- 8.4 Key interfacing using interrupt
- 8.5 Practical application based on interrupt

Chapter 9

- 9.1 Introduction of Relay
- 9.2 Relay interfacing and comparison of relay with other switching devices
- 9.3 Relay programming
- 9.4 Practical application based on relay

Chapter 10



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10.1 Introduction of ADC

10.2 ADC interfacing

10.3 ADC programming

Chapter 11

11.1 Introduction of DTMF mobile technology

11.2 DTMF technology interfacing in real application

11.3 DTMF programming

11.4 Practical project design based on DTMF technology

Chapter 12

12.1 Introduction of RF Communication

12.2 RF technology interfacing in real application

12.3 RF module programming

12.4 Practical project design based on RF technology

Chapter 13

13.1 Introduction to RFID communication

13.2 RFID technology interfacing in real application

13.3 RFID module programming & Practical Project Designing



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Wireless Communication

Chapter 1

- 1.1 Introduction of DTMF mobile technology
- 1.2 DTMF technology interfacing in real application
- 1.3 DTMF programming
- 1.4 Practical project design based on DTMF technology

Chapter 2

- 2.1 Introduction of RF Communication
- 2.2 RF technology interfacing in real application
- 2.3 RF module programming
- 2.4 Practical project design based on RF technology

Chapter 3

- 3.1 Introduction to RFID communication
- 3.2 RFID technology interfacing in real application
- 3.3 RFID module programming
- 3.4 Practical project design based on RFID technology



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Chapter 4

- 4.1 Introduction to GSM communication
- 4.2 GSM technology interfacing in real application
- 4.3 GSM module programming
- 4.4 Practical project design based on GSM technology

Chapter 5

- 5.1 Introduction to Bluetooth communication
- 5.2 Bluetooth technology interfacing in real application
- 5.3 Bluetooth module programming
- 5.4 Practical project design based on Bluetooth technology



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Real Time Operating System (RTOS)

Theory Syllabus

Chapter1 : Introduction to real time applications

1.1 Soft and hard real time applications

Chapter2 : Real time operating systems

2.1 Introduction to real time operating systems

2.2 Different real time operating systems

Chapter3 : RTOS VS GPOS

3.1 Task scheduling

3.2 Latency

3.3 Priority inversion

Chapter4 : Multitasking

Chapter5 : FreeRTOS



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5.1 Introducing freeRTOS

5.2 About freertos.org and freertos licensing

Chapter6 : Overview of

6.1 free RTOS scheduler

6.2 free RTOS task management

6.3 free RTOS memory management

6.4 free RTOS heap and stack management

6.5 free RTOS synchronization and mutual exclusion services



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- As we are working for industries for their product development, R&D, Customization & Manufacturing we get direct recruitment related notification from that companies whenever there is the recruitment in the that companies.
- Also other companies in the market they also call us regarding recruitment process.

These entire JOB related notifications we exclusively provide to our students and they can apply in that companies directly. We upload the password protected job notifications on our website, students can access that job notifications from our website with password.