



## **Program and Topicson Embedded that we plan for Fresher / Corporate recruitment**

### **Basic Embedded Systems and System Programming**

#### **Advance C and C++ concepts for System Engineers**

C programming in the context of implementing C applications for 8 bit and 16 bit micro-controller architectures. A distinction is made between pure ANSI C programming and use of pragmas and extensions as found with various embedded C compilers targeted at specific microcontrollers. General ANSI C programming is taught using a PC oriented IDE such as Microsoft's Visual Studio or the GCC compiler under Eclipse. Attendees perform hands on embedded programming, on PC during course practical. Advance C++ section is towards covering advance System topics for using C++ for embedded/system projects. We use GNU or Visual C++ compiler for labs.

#### **Advance JAVA programming**

Java is a general purpose programming language that can be used for a variety of tasks. For example, you could use Java to build Palm Pilot applications (J2ME), web-based applications (JSP and Servlets), client-side GUI applications (Swing and AWT), database applications (JDBC, JDO and Entity EJB) or distributed applications (EJB and Web Services). However, at the core, the basic concepts and syntax are the same. This hands-on Java training workshop covers these core concepts and syntax. We feel this Java training workshop provides a strong foundation upon which to start your Java training.

#### **Architecture for Embedded -ARM, XSCALE, ATOM**

The ARM architecture is one of the world's most common 32-bit microprocessors architectures. Different semiconductor companies have ARM based microcontrollers in their portfolio, e.g. ARM7, ARM9, Cortex and the XScale architecture. ATOM is the new popular INTEL architecture in min laptop and heavily used in embedded application. This course cover all these architecture in details to the extend the student understand the important of these processor family and their importance.

#### **POSIX Standard and ANSI C /Misra C programming**

**POSIX stands** for Portable Operating System Interface for computing environments. POSIX began as an effort by the IEEE community to promote the portability of applications across UNIX® environments by developing a clear, consistent, and unambiguous set of standards. However, POSIX is not limited to the UNIX environment. It can also be implemented on non-UNIX operating systems, as was done with the IEEE Standard 1003.1-1990 (POSIX.1) Implementations on Virtual Memory System (VMS), Multiprogramming Executive (MPE), and the Conversion Technology Operating System (CTOS).

**ANSI C**, like other national standards bodies, no longer develops the C standard independently, but defers to the ISO C standard. National adoption of updates to the international standard typically occurs within a year of ISO publication.



Using C for embedded development requires a good understanding of the programming language being used. This is a one day intensive course that introduces coding guidelines developed specifically for use on embedded projects using the C language. The course covers a set of rules in detail, set in the context of C. The latter part of the course looks at the commercial support for the guidelines.

**MISRA-C** guidelines, developed by the Motor Industry Software Reliability Association (MISRA) for the use of the C language in vehicle based software ([www.misra.org.uk](http://www.misra.org.uk)). However, these guidelines are applicable to any project using C that has safety requirements or the need to develop high quality code. The MISRA-C guidelines are suitable for projects up to Safety Integrity Level (SIL) 3.

### **Embedded Computer Design**

This course provides participants with skills in the design of microcomputers and assembly language programming. It involves the interfacing memory and I/O devices to a microprocessor. The major blocks making up a microprocessor and system are presented. Participants will study I/O interfacing, microprocessor bus operation and timing, timers, and interrupts. The course is designed to be practical and is oriented towards daily laboratory sessions. In addition, a more comprehensive project allows participants to use their innovative ideas to design a real-world embedded controller.

### **Basics of Embedded Systems and Real-time Programming**

This course is ideal for engineers who are new to the field of real-time. It is also applicable to both managers and engineers who are considering the use of Real-Time Operating Systems on future projects. Basics that are needed for the Embedded Systems and the design of the embedded systems and related concepts are covered in this program.

### **Operating Systems and Device Programming**

#### **Windows CE for Devices and Drivers Workshop (using HW)**

Windows Embedded CE 6.0 provides the tools and technologies to create devices that deliver immersive user interfaces and unique connected experiences. Powerful development tools like Platform Builder, a Visual Studio 2005 plug in, provide an integrated development environment (IDE) that enables you to build both application and Windows Embedded CE operating system software in a familiar environment to streamline the development process. Objective of the training is to enable the participant to learn the process of developing drivers and application for the CE product development.

#### **Embedded Linux using Devices and Drivers Workshop (using HW)**

Embedded Linux is rapidly becoming an Operating System of choice for many embedded developers. According to the LINUX open source website, the significant reasons are that the source code is available, there are no runtime royalties and it is a robust reliable operating system which has excellent networking support.



This course teaches embedded skills using an embedded environment. Unlike most Linux courses, that use PC's as the target, this course uses ARM target hardware – a true embedded environment. It also covers various standard drivers for standard X86 Architecture and how it is implemented in the board used in the lab.

### **Linux Kernel Internal and Programming**

This course consists of 5 full days of training on Linux Kernel Internal Programming which covers the 2.4.x and 2.6 kernel programming models. The course starts with a session on the Linux execution environment. This session is a review of the kernel architecture and covers the various features and programming environment. Also covered is a review of processes and threads, exceptions, user versus kernel mode programming aspects and various IPC techniques in Linux Kernel .

### **Windows Kernel Internal and Drivers Programming**

With a growing demand for Windows System Professionals, we are pleased to introduce a new batch of “Windows Internals and Drivers” Which includes topics related to key components of system like Thread scheduling, I/O, memory management, Windows Security, Debugging using Win Dbg to explore windows internals. Windows Driver Model and development, PnP Concepts, Storage Stack, Device Driver building, debugging, writing installer. Synchronization, Interrupts, PnP Filter drivers.

### **Game Development, Mobile and Wireless Technology**

#### **GAME Development using C/C++**

C++ has become one of the favorite programming languages for game Programrs. Reasons for wide spread acceptability of C++ are plenty, but primary reasons are, that it allows Programrs to better manage program complexity without losing performance.

C++ popularity will only grow further in the coming years with games increasing in complexity and size. Having a good command over C++ is essential to anyone planning a career in game or graphics programming. It is to fulfill this objective that we have designed this course. Focus in this course will be to get Programrs started with and then eventually gain a firm grounding in C++ with a focus on game and graphics programming. The course would be highly interactive with lots of example code and programming exercises to give the student a hands on experience.

#### **3D Graphics Programming and DirectX**

Direct X is an API that provides an interface to the GPU (Graphics Processing Unit). It has been developed by Microsoft and competes with OpenGL API. Most of the gaming engines that are used for programming games have been developed on top of either OpenGL or DirectX. Hence, theoretical and practical knowledge of DirectX or OpenGL is essential for any serious game Programr. This course will provide a game Programr with solid 3D graphics fundamentals using DirectX.



### **MPEG, JPEG, H.264 -Video Streaming Protocol Standards**

This lecture aims at understanding implementation issues on international image/video standards such as JPEG, MPEG, H.264,... and taking practical lab exercises coded in Visual Studio and C. Lecturer will conduct every day workshop discussing functional issues in the source code and supervising a practical course. Some background reading on digital image processing and information theory is preferably recommended as prerequisites in this course.

### **Wireless and WiMAX Technology Workshop**

802.11n is a recent amendment which improves upon the previous 802.11 standards by adding multiple-input multiple-output (MIMO) and many other newer features. The IEEE has approved the amendment and it was published in October 2009. Prior to the final ratification, enterprises were already migrating to 802.11n networks based on the Wi-Fi Alliance's certification of products conforming to a 2007 draft of the 802.11n proposal. This workshop helps the researchers and developers to understand the Wireless Network Standard and its layers MAC, PHY and their security aspects and Quality Of Service details.

This WiMAX course is very comprehensive and first in this country covering the fundamentals of Wireless Technology and taking the researchers/engineers through the layers of the WiMAX PHY, MAC layers also cover Security Aspects of the WiMAX. This course also covers the hand over techniques, and Multiple Antenna and related implementation aspects. Though taken on lecture basis several examples and explanation will make the engineers understand the techniques.

### **Android and iPhone Application Development**

**Android is a platform delivered by Google** within the Open Handset Alliance as a complete set of software for mobile devices: an operating system, middleware and key mobile applications. Built on the open Linux Kernel, it is customized to optimize memory and hardware resources in a mobile environment and promises to be a formidable force in the industry. This fast-paced and hands-on class starts from setting up the Android Development Environment and takes the attendees all the way to publication of an application on the Android marketplace. The course covers the Android SDK and the details of its building blocks, UI, inter process communication, threading, graphics, media, networking, locations, sensors as well as native application implementation in C/C++.

**Apple iPhone is a great** 3G multi-touch phone with host of amazing features that make this smartphone useful to every category of mobile users. Apple lets individual developers and companies to list their custom iPhone applications on the iPhone Store for free or commercial distribution. This iPhone Development Training Course you will be adept at writing iPhone applications that look and function the same way as the some of the applications on your iPhone. Our detailed courseware and step-by-step guided classes will eliminate all failures and frustrations you might otherwise face while developing iPhone applications, and thus save your valuable time.



## **General ICT and Enterprise topics**

### **Effective Software Testing Concepts using Tools**

Today one of the factors to achieve software quality is through comprehensive Testing. With crunched schedules and stringent budget, testers need structured approach to handle testing as a process through set of tools. This course is designed for people who aspire to do the testing as a professional work to satisfy customers through effective testing. Participants will learn how to create an effective test strategy, how to design creative test cases, how to optimize test cases to get the most testing from the fewest number of cases and how to collect metrics and analyze the report for improvements. Attendees will leave this course with a solid foundation for testing in situations which are very diverse and dynamic. This course is centered around a common case study which builds throughout the course. You will emerge from this three-day session knowing how to plan and conduct tests in diverse and complex environments.

### **UML based programming for Model Driven Development**

The Unified Modeling Language (UML) is a design notation. To develop software using UML you must cleave to a process which describes how to use these notation. This course describes a process for designing UML oriented systems using UML 2.X as the notation. This course uses comprehensive and complete examples and also identifies the areas where UML 2.X improves on design, but also still identifies its weaknesses The course is backed up by a comprehensive CASE study demonstrating how to apply UML 2.x to practical systems.

### **OOAD using UML Hands on Workshop**

This five day program covers the concepts and best practices of software development using object-oriented analysis and design. It includes an overview of the software development life cycle, a detailed coverage of the Unified Modeling Language (UML) version 2.0, and case studies to understand and apply the practices of analysis and design with the object technology.

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