

'Linux Device Drivers LIVE Workshop'

Special Focus: Live hands-on with Character and USB "Device" Drivers

Next Workshop commencement dates: Kindly check website /Contact directly

Duration: 8 sessions of 3 hours each over 5 weekends

Course Fee: Rs.9000 /-Per Person (Inclusive of All Taxes)

Venue: Emertxe Information Technologies Pvt Ltd, #1 5th Main 9th Cross, Jayamahal Extension, Bangalore -560046. (Behind Jayamahal Bus Stop)

Workshop Session Topics:

Session 1: Introduction & The First Driver

Session 2 & 3: Character Drivers

Session 4 & 5: USB Drivers

Session 6 & 7: Block Drivers & File System Module

Session 8: PCI Drivers & Wrap Up

Workshop Pre-requisites:

- Good C & Programming Skills
- Basic Hands-On Linux Usage
- Understanding of Files, Filesystems, Kernel & User Space
- Hands-On with gcc & its friends
- Understanding of make & Makefiles

Workshop Highlights:

- Platform: x86-based
- Kernel: Version 2.6.x
- Drivers: For Real Hardware
- Special Focus: Live hands-on with Character and USB "Device" Drivers

Detailed Course Contents:

- Linux Driver Ecosystem
- The Kernel 2.6 Source Organization
- Driver Development Environment
- Character Drivers
 - Major & Minor Numbers
 - Registering & Unregistering
 - Device Files & Device Classes
 - File Operations & its related Kernel Data Structures
 - Special Focus on open, release, read, write, ioctl
- Memory Access in Kernel Space
- Hardware Access Mechanisms
 - System Memory
 - Device Memory
 - I/O Ports
- Kernel & Driver Debugging Options & Techniques
- Ways to Deal with Concurrency
- Time Keeping, Delays, and the Timers in Kernel
- USB Drivers
 - USB Device Layout
 - USB Driver Layout
 - USB Core & Sysfs
 - USB Driver Registration
 - USB Device Hot-plug-ability
 - URB & its Operations
 - Special Focus on Control & Bulk Transfers
- Interrupts
 - IRQs & their Registration
 - IRQ Handling & Control
 - Soft IRQs
 - Top & Bottom Halves

- Block Drivers
 - Driver Registration
 - Disk Drive Registration
 - Block Device Operations & its related Kernel DS
 - Request Queues & their Processing
- File System Modules
 - Virtual File System (VFS) Interfaces
 - VFS Internals
 - File System Registration & Operations
 - Super Block Operations
 - Inode Operations
 - Address Space Operations
 - File Operations
- PCI Driver
 - PCI Interface
 - PCI Configuration Space
 - PCI Driver Registration
 - PCI Device Access & Operations

Detailed Hands-On Content:

- The Driver specific Commands & Tools
- Setting up the Driver Development Environment
 - Understanding Kernel's Build System
 - Writing your Makefile
- Writing your "first" Driver
- Writing various Character Drivers
 - Null Driver
 - Memory Based Driver
 - UART (Hardware) Based Driver
- Understanding the USB Ecosystem
 - Walk through of Procs & Sysfs in relation of USB
 - Understanding the USB Device entries
 - Interfacing with the USB Core
- Writing a USB Driver
 - USB Driver & Device Registration
 - Hot-plug-ability: probe and disconnect
 - Bulk Transfers & Various System Calls
 - USB to Serial Device (Hardware) Driver
- Writing a File System Module (FSM)
 - Memory Based File's Data & Meta Data in our FSM
 - Mounting over a Pseudo Device
 - Interfacing with the VFS
 - Filling the Super Block
 - Creating the Directory Entry & Inode

- Performing the operations: ls, cd, stat, sync, ...
- Pseudo File System Driver

Payment Options:

1) Online

Account Name : **Emertxe Information Technologies (P) Ltd**

Account No : **10378321544**

Name of Bank : **State Bank of India**

Branch : **Jayamahal Extension**

2) On Spot

Cash /Any Major Credit /Debit Cards

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