

Online On-demand – Linux Device Driver Programming

Sandeepani is the training division of CoreEL Technologies (I) Pvt Ltd and Authorized Training Provider for AMD-Xilinx in India

Course Description:

This course is designed to build a strong foundation for Linux device driver programming. It is a hands-on practical guide to device driver programming with in depth understanding of critical concepts like concurrency in kernel code and kernel memory management.

Who should attend?

- Anyone interested in exploring kernel device drivers from software development perspective

Pre-requisites:

- General understanding of operating systems
- Comfortable with C programming
- Comfortable with Linux command line environment

Access:

- Login and password will be shared within 1 business day after payment and registration
- Content will be made available for 1 month from start of access

Software development environment:

- Linux distribution with kernel > 4.0

What do I gain?

After completing this comprehensive training, you will have the necessary skills to:

- Distinguish between Linux kernel programming vs application programming
- Understanding of Linux kernel device driver frameworks
- Ability to implement and test device driver modules in Linux
- Understanding of various mechanisms like concurrency tools, memory management in kernel space

Course Contents

- Kernel programming vs application programming
- Kernel Symbol table, module init and shutdown, module parameters, printk, log levels, role of device driver, types of device driver, dmesg
- Kernel build system, module build, modprobe, insmod, lsmod, rmmod
- Lab – Write, build, load and use a simple kernel module - 'Hello world'
- char device driver- device number - char device registration, open and release
- Lab – implement a simple char driver – register device number, map driver to device, use driver to invoke device
- Memory allocation in kernel
- Lab – Use kmalloc() to allocate memory for char device driver, implement and test read/write functions for the driver

- Concurrency tools in Linux - spinlock API, read/write spinlocks, Sempahores, reader/writer semaphores, mutex, atomic operations
- Lab – demonstrate mutual exclusion among two kernel modules with mutex and spinlocks
- Kernel memory management - memory zones, page allocation functions, large memory allocation
- Interrupt - installing interrupt handler, sharing interrupts, /proc/interrupts, enabling and disabling interrupts
- Deferred work - tasklets, workqueues
- Lab – Implement interrupt handler with top and bottom halves using tasklet/workqueue
- Block drivers - registration, block device operations, request processing
- Lab – Implement and test a block driver for managing a memory mapped file system
- Sysfs interface to probe devices and related info, rules to parse sysfs file entries. Kernel debugging - printk, proc, kdb, kgdb, oops message

Course Fee: INR 4,999/- (Inclusive of tax. Course fee is non-refundable)

Registration link: [Click here to register](#)

Payment Guidelines:

Participants of Sandeepani training modules can make the course fee payment through online transfer via Google Pay/PhonePe/UPI using the below details and proof of the same to be scanned & mailed to training@coreel.com. For assistance, contact us: +91-9844182555, +91-9686690000.

UPI ID: coreeltechnologiespvtltd@kbl
Current Account No: 0947000104207601
IFSC Code of Bank: KARB0000094

BHIM UPI PAYMENT ACCEPTED
SCAN QR CODE TO PAY

