

**CETPA INFOTECH PVT. LTD.**  
**CURRICULUM OF LINUX INTERNALS, RTOS & DEVICE DRIVERS**

**DURATION: 6 WEEKS**

❖ **LINUX INTERNALS**

❖ **GETTING STARTED**

- Introduction to Unix and Linux.
- Programming Linux.
- Linux Compiler.

❖ **WORKING WITH FILE**

- Unix file Structure.
- File and directory maintenance.
  - Chmod
  - Mkdir
  - rmdir
- Low level File handling.
  - Write
  - Read
  - Open
  - Umask
  - close

• **Library Function.**

❖ **PROCESSES AND SIGNALS**

- What is process?
- Process Structure.
- Starting new process.
- Signal handling.
  - Sending signal
  - Signal sets

❖ **THREADS**

- What is thread?
- Thread programming.
- Synchronization.
  - Synchronization with semaphores
  - Synchronization with mutexes

❖ **INTER-PROCESS COMMUNICATION: PIPES**

- What is pipe?
- Process Pipes.
- The pipe call.
- Parent and child processes.
- Named pipes.

❖ **SEMAPHORES MESSAGE QUEUES AND SHARED MEMORY**

- what is semaphores
- Unix Semaphores facilities
- Shared memory.
  - Functions
  - Summary
- Message queues.

❖ **SOCKETS**

- What is socket?
- Socket connection.

❖ **RTOS AND VX-WORKS**

- **Real time system**
- **What is RTOS**
- **Need of RTOS**

❖ **DEVICE DRIVER**

❖ **INTRODUCTION TO DEVICE DRIVERS**

- Kernel Synchronization and The Virtual File system.
- Linux Device Interface and understanding the access method of Device in Linux.
- SCULL
- CHAR driver.
- Pseudo Driver Development and kernel Data Structures.
- Device Operations

❖ **MEMORY ALLOCATION AND OTHER PARAMETERS**

- Memory Allocation and debugging.
- Concurrency, Race condition and Synchronization.

❖ **CONTROL & OPERATION OF DRIVERS**

- Device Control.
- Advanced Device Operations.
- Interrupt handling and synchronization Techniques.

❖ **MODULE 9: BLOCK DRIVERS**

- Introduction to the Block Driver
- SBULL

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