



HACKERU



R-T Linux Embedded

BT122

32

Academic Hours

R-T Linux Embedded

Outline

This intensive hands-on course will teach you about Linux internals, kernel APIs Linux start-up process.

Kernel driver structure, Daemons standard and customize, UNIX file system, UNIX process and threads structure, Inter process communication and synchronization methods and more.



Target Audience

Experienced web client developers



Prerequisites

The student should be an experienced C/C++ programmer, with knowledge on bash commands and working in a UNIX environment.



Objectives

The objectives of this course is a comprehensive overview on Linux internals for both developers and architects, getting familiar with the variety of options available for Software architecture and design considerations. Giving tools to help answer standard questions for example: Should this be a process or a thread? Which communication mechanism is best using here? Should this code run in kernel space or user space? Etc.





Content

Module 01 Introduction

- | Unix history
- | Unix file system structure
- | Unix kernel layers
- | UNIX startup and initrd.
- | Standard Daemons
- | The /etc. scripts

Module 02 Basic IO

- | Stream
- | System calls
- | File manipulation
- | Links

Module 03 Signals and interrupts

- | Signal handlers
- | Timers
- | Signal APIs
- | Interrupt APIs
- | Standard way to handle interrupts in user space
- | The UNIX interrupt service routine



**A comprehensive
overview on Linux**
internals for both
developers and
architects"



Module 04

Process and threads

- Process life cycle
- Fork
- Orphans & zombies
- Exec command
- System command
- Daemons

Module 05

IPCS

- ipes
- Named pipes
- Message queues
- Sockets
- Shared memories
- Accept/read/wait APIs

Module 06

Synchronization methods

- Semaphores
- Semaphore calls
- Mutex

Module 07

Debugging Linux kernel

- Working with kernel drivers as file descriptors
- The Linux Scheduler
- Working on a working driver structure and example
- Linux procfs and sysfs



The HackerU **Advantage**

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